

ILLINOIS ENVIRONMENTAL PROTECTION AGENCY

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PAT QUINN, GOVERNOR

US EPA RECORDS CENTER REGION 5



217/524-3300

April 8, 2011

CERTIFIED MAIL 7009 3410 0002 3808 0328

Mr. Robert Kent Vice President and Plant Manager The Lemont Refinery, CITGO Petroleum Corporation 135th Street and New Avenue Lemont, Illinois 60439-3659

Re: 1978030004 -- Will County CITGO, Lemont Refinery

ILD041550567

RCRA Permit Log No: B-162R RCRA Permits Admin Record File

Permit Approval

Dear Mr. Kent:

Attached is a renewed RCRA Hazardous Waste Management Post Closure permit for the CITGO Lemont Refinery in Lemont, Illinois. The final permit decision is based on the administrative record contained in the Agency's files. The contents of the administrative record are described in 35 Ill. Adm. Code 705, 211.

The renewed permit being issued for this facility requires CITGO to: 1) close the four areas in the hazardous waste land treatment facility, 2) provide a minimum of 30 years of post-closure care for the closed land treatment facility, 3) conduct a groundwater detection monitoring program, and 4) continue to conduct a corrective action program on the solid waste management units (SWMUs) including site-wide groundwater monitoring at the CITGO Lemont Refinery. Please read this document carefully. Failure to meet any portion of the permit could result in civil and/or criminal penalties.

The only comments received on the draft permit for this facility were submitted by CITGO. Response to these comments and any changes made to the draft permit in response to CITGO's comments is attached to this letter.

This action shall constitute Illinois EPA's final permit decision on the application mentioned above. The permit will become effective thirty-five (35) days after this service of notice of the decision, unless it is appealed, or at a later date if stated in the permit unless the decision is appealed. Within 35 days after this notification of a final permit decision, the Permittee may petition the Illinois Pollution Control Board to contest the issuance of the permit. The petition shall include a statement of the reasons supporting a review, including demonstration that any

issues raised in the petition, were previously raised during the public comment period. In all other respects the petition shall be in accordance with the requirements for permit appeals as set forth in 35 III. Adm. Code Part 105. Nothing in this paragraph is intended to restrict appeal rights under Section 40(b) of the Environmental Protection Act (35 III. Adm. Code 705.212(a)).

Work required by this letter, your submittal or the regulation may also be subject to other laws governing professional services, such as the Illinois Professional Land Surveyor Act of 1989, the Professional Engineering Practice Act of 1989, the Professional Geologist Licensing Act, and the Structural Engineering Licensing Act of 1989. This letter does not relieve anyone from compliance with these laws and the regulations adopted pursuant to these laws. All work that falls within the scope and definitions of these laws must be performed in compliance with them. The Illinois EPA may refer any discovered violation of these laws to the appropriate regulating authority.

If you have any questions concerning this permit, please contact Rob Watson, P.E. at 217/524-3265. Questions regarding the groundwater aspects of this permit should be directed to Paula Stine at 217-524-3861. Questions regarding the corrective action aspects of this permit should be directed to Takako Halteman at 217-524-3274.

Sincerely,

Stephen F. Nightingale, P.E. Manager, Permit Section

Bureau of Land

cc:

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JUM WRW THH BYTH

Attachment 1: Response to Comments on draft permit & Changes to permit

Attachment 2: RCRA Permit

Willie Harris, USEPA Region V

Mark Robbins, TRC

RESPONSE TO COMMENTS & CHANGES TO RCRA PERMIT

CITGO Lemont Refinery

USEPA ID No: ILD041550567 STATE ID No: 1978030004 Log No: B-162R

I. INTRODUCTION

On December 22, 2010 the Illinois EPA issued a draft renewal of the RCRA hazardous waste post-closure permit for the CITGO Lemont Refinery. The comment period for this draft renewed RCRA permit began on December 31, 2010 and ended on February 14, 2011. The only comments Illinois EPA received on the draft permit were submitted by CITGO in a letter dated February 10, 2011. CITGO's comments were provided in two attachments; Attachment 1, General Comments, and Attachment 2, Editorial Comments.

In accordance with 35 Ill Admin Code 705.210, this document provides responses to CITGOs comments and also identifies any changes made to the draft permit as a result of the comments.

The Illinois EPA responses are divided up into the following groups: the RCRA Unit addressed comments regarding closure and post closure of the land treatment facility, the Groundwater Assistance Unit (GAU) addressed comments on groundwater monitoring, and the Corrective Action Unit (CAU) addressed comments on corrective action.

The responses to comments follow the following format: CITGO's comment is repeated, IEPA's response is provided, and any change to the permit as a result of the comment is identified.

II. RESPONSES TO COMMENTS by the RCRA Unit

General Comments (Attachment 1)

Condition II.A

CITGO Comment

Remove the line item for "Notice of Intent to Close the LTF." It was submitted as a response for additional information from the Agency, not a formal "Notice of Intent to Close the LTF."

IEPA Response

The June 4, 2010 letter is considered additional information to the permit application because it indicates that the permittee no long intends to pursue a permit to use the LTF as a CAMU – as stated in the permit application. It needs to be included in the permit because it is part of the approved permit application. Therefore, it will not be removed from Condition II.A. However, the Agency has revised this line item in Condition II.A to indicate this submittal is considered as additional information to the permit application.

Change to Permit

The line item in question in Condition II.A was revised to read: "Additional Information CITGO intends to close the LTF"

Condition III.E.2.b

CITGO Comment

Consider changing to: "Any material removed from the land treatment areas during future activities must be managed as a hazardous waste in accordance with 35 Ill. Adm. Code Subtitle G: Waste Disposal."

IEPA Response

CITGO's proposed change is acceptable.

Change to Permit

Condition III.E.2.b now reads: "Any material removed from the land treatment areas during future activities must be managed in accordance with 35 Ill. Adm. Code Subtitle G: Waste Disposal."

Condition III.E.4.b

CITGO Comment

Consider changing to: "The qualified Professional Engineer registered in the State of Illinois <u>or his representative</u> should be present at all critical, major points (activities) during the closure. These might include soil sampling, soil removal, backfilling, final cover placement, etc. The frequency of inspections by the qualified Professional Engineer <u>or his representative</u> must be sufficient to determine the adequacy of each critical activity."

IEPA Response

The focus of this special condition is to note that the PE should be present at 'critical activities' during the closure process. The engineer's representative may be present at other times.

Change to Permit

No change was made to the condition.

Condition IV.D.8

CITGO Comment

Consider changing to: "Concentrations greater than the TACO Class 1 cleanup objective for each compound specified in the following table shall be considered to be a statistically significant increase (SSI)."

IEPA Response

TACO is used for cleanup, not monitoring. The goal of the unsaturated zone monitoring program is to determine if parameters are detected below the treatment zone at a statistically significant concentration. For organics, any concentration above PRGs would be significant.

Change to Permit

No change was made to the condition.

Condition IV.D.9

CITGO Comment

"Within ninety (90) days of determining there is a SSI the Permittee shall either apply for a permit modification to modify the post-closure practices at the facility to maximize the success of degradation, transformation or immobilization processes in the treatment zone or may demonstrate that a source other than the regulated unit caused the increase or the increase resulted from an error in sampling, analysis or evaluation."

CITGO believes it should have an opportunity to demonstrate a source other than the regulated unit caused the SSI before being required to apply for a permit modification and requests the permit language to be revised as such.

IEPA Response

See response to Comment on Condition IV.D.10 below.

Change to Permit

See Change to Permit in response to Comment on Condition IV.D.10 below.

Condition IV.D.10

CITGO Comment

Replace current language with: "If the Permittee chooses not to make the demonstration provided in Condition IV.D.9 above, they shall apply for a permit modification to modify the post-closure practices at the facility to maximize the success of degradation, transformation or immobilization processes in the treatment zone within ninety (90) days of determining there is a SSI. If the Permittee makes such a demonstration and the agency notifies them that the demonstration is unsuccessful, they shall submit a modification request within ninety (90) days of receipt of the notification. The Permittee need not submit the modification request if they successfully make the demonstration within the ninety (90) day time period provided in Condition IV.D.9 above and the Illinois EPA concurs."

Unless the demonstration that a source other than the regulated unit caused the SSI is not made, CITGO believes the time clock for any permit modification request should begin on the date of receipt of agency notification that the demonstration was unsuccessful. CITGO requests the language be modified as such.

IEPA Response

35 Ill. Adm Code 724.378(h) states the permittee is not relieved of the requirement to submit a permit modification within 90 days of determining the SSI unless the demonstration allowed under this subsection (h) is successful. There is no way of knowing in advance if the demonstration will be successful (i.e. if IEPA will approve it). Therefore, if the permittee intends to make a demonstration allowed under subsection (h), they need to submit both the demonstration and a permit modification within 90 days of determining an SSI in order to avoid the possibility of being in noncompliance with 724.378(h) and the permit. This is exactly what 724.378(h)(2) & (3) state. Conditions IV.D.9 has been revised, and Condition IV.D.10 has been deleted as indicated below to more closely reflect what the regulations at 35 Ill. Adm Code 724.378(g) & (h) require the permittee to do in the event of an SSI.

Change to Permit

- 9. <u>If the Permittee determines, pursuant to Condition IV.D.8, that there is a statistically significant increase (SSI) of hazardous constituents below the treatment zone, the Permittee shall take the following actions:</u>
 - a. Notify the Illinois EPA in writing of this finding within seven days, indicating which constituents have shown statistically significant increases, and
 - b. Within ninety (90) days of determining there is a SSI, the permittee shall apply for a permit modification to modify the post-closure practices at the facility to maximize the success of degradation, transformation or immobilization processes in the treatment zone; or,

- c. Demonstrate that a source other than regulated units caused the increase or that the increase resulted from an error in sampling, analysis, or evaluation. The Permittee must do the following when making this demonstration:
 - i. Notify the Agency in writing within seven days of determining there is an SSI that the Permittee intends to make a demonstration under 724.378(h);
 - ii. Within 90 Days of determining there is an SSI, submit a report to the Agency demonstrating that a source other than regulated units caused the increase or that the increase resulted from an error in sampling, analysis, or evaluation;
 - iii. Within ninety (90) days of determining there is a SSI, submit an application for a permit modification to make any appropriate changes to the unsaturated zone monitoring program at the facility; and
 - iv. Continue to monitor in accordance with the unsaturated zone monitoring program established under this permit and the regulations.
- 10. The Permittee need not submit the modification request required by Condition IV.D.9 if they successfully demonstrate that a source other than the regulated unit caused the increase or that the increase resulted from an error in sampling, analysis or evaluation within the ninety (90) day time period referenced in Condition IV.D.9 above.

Condition IV.E.1

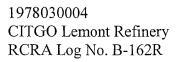
CITGO Comment

Consider changing to: "The results of all inspections shall be maintained <u>electronically or</u> in the Inspection Log..."

IEPA Response

The format and content of the Inspection Log is specified in Condition IV.E.1of the permit and Appendix I.2.2 (Post-Closure Period Inspection Form). This content and format of the Inspection Log specified in the permit must be maintained by CITGO regardless of whether it is in electronic or hard copy.

CITGO may maintain the Inspection Log electronically if that is acceptable with the IEPA inspector(s) responsible for the facility; provided the format and content specified in the permit remain the same and CITGO is able to print out a copy at any time.



Change to Permit

No change was made to the condition.

Condition IV.E.1

CITGO Comment

Consider changing to: "The Permittee shall inspect and Groundwater & Unsaturated Zone Monitoring-Systems at the LTF"

IEPA Response

CITGO's proposed change is acceptable. Other than the security system &benchmarks already addressed in this condition, there are no physical components of the unsaturated zone monitoring system to inspect, so this part of the condition can be deleted.

Change to Permit

Condition IV.E.1 now reads: "The Permittee shall inspect and Groundwater Monitoring Systems at the LTF"

Condition VII.13.b

CITGO Comment

Consider changing to: "The Permittee shall retain records of all monitoring information, including all calibration and maintenance records and <u>data generated from any all original strip</u> chart recordings for continuous monitoring instrumentation, copies of all reports and records required by this permit . . ."

IEPA Response

Condition VII.13.b is one of the Standard Conditions that apply to all facilities. If the permit application does not propose using strip charts to record data, this portion of the condition would not be applicable, and the permittee would not need to comply with it.

Change to Permit

No change was made to the condition.

Condition VII.31

CITGO Comment

Consider changing to: "OPERATING RECORD. The Permittee shall maintain a written or electronic operating record at the facility in accordance with 35 Ill. Adm. Code 724.173."

Responses to Comments Page 7 of 38

IEPA Response

Condition VII.31 one of the Standard Conditions that apply to all facilities.

CITGO may maintain the Operating Record electronically if that is acceptable with the IEPA inspector(s) responsible for the facility; provided the format and content specified in the permit remain the same and CITGO is able to print out a copy at any time.

Change to Permit

No change was made to the condition.

Editorial Comments (Attachment 2)

Cover Sheet

CITGO Comment

Consider changing to: "Hazardous Waste Management RCRA Post-Closure Permit"

IEPA Response

Both the cover letter and first page of the permit already refer to a "Post-Closure Permit."

Change to Permit

No change was made to the permit.

Various Conditions

CITGO Comment

Revise to make Subsection heading font sizes uniform throughout the permit.

IEPA Response

Subsection heading font sizes throughout the permit are deemed to be sufficiently similar as written.

Change to Permit

No change was made to the permit.

Various Subsections

CITGO Comment

Permit is sometimes capitalized and sometimes not. Revise as deemed necessary and/or appropriate.

IEPA Response

Subsection heading font sizes throughout the permit are deemed to be sufficiently similar as written.

Change to Permit

No change was made to the permit.

Various Subsections

CITGO Comment

The permit occasionally refers to Permittee(s). Remove parenthetical plural option as deemed necessary and/or appropriate since there is only one permittee at this facility.

IEPA Response

CITGO's proposed change is acceptable. The references to "Permittee(s)" in the permit have been changed to "Permittee."

Change to Permit

Changes were made as needed.

Condition III.E.1

CITGO Comment

Consider changing to: "The Permittee shall close the LTF in accordance with the plans and specifications contained in the closure plan to be submitted once the Permit has been approved, and in accordance with the conditions in this permit."

IEPA Response

CITGO's proposed change is acceptable. The requested change has been made to the condition.

Change to Permit

Condition III.E.1 has been revised to read: "The Permittee shall close the LTF in accordance with the plans and specifications contained in the closure plan to be submitted once the Permit has been approved, and in accordance with the conditions in this permit."

Condition III.C.9

CITGO Comment

Consider changing to: "The Permittee shall maintain to the vegetative cover as necessary to correct ..."

IEPA Response

CITGO's proposed change is acceptable. The requested change has been made to the condition.

Change to Permit

Condition III.C.9 has been revised to read: "The Permittee shall maintain the integrity and effectiveness of the final cover, including making repairs to the eap <u>vegetative cover</u> as necessary to correct the effects of settling, subsidence, erosion, and other events."

III. RESPONSES TO COMMENTS by the GAU

GENERAL COMMENTS

COMMENT ON CONDITION V.D.1

Consider revising Condition to read "The Permittee shall maintain groundwater monitoring wells and ..." (removal of "install and" right before "maintain")

ILLINOIS EPA RESPONSE

Should the well become damaged or structural integrity has been compromised, the well would require a replacement well to be installed. In addition, the language provided in this condition is standard language. Therefore, the Illinois EPA cannot approve the request to modify this condition.

NO CHANGE

COMMENT ON CONDITION V.E.1

Consider adding the sentence, "Note that the elevation of measuring point survey schedule shall continue on the five-year cycle already established in accordance with the original Permit."

ILLINOIS EPA RESPONSE

This is a standard condition and will not be modified as requested. The facility is required to maintain records of well survey collection and thus should meet the requirements of surveying once every five years. No notation is necessary.

NO CHANGE

COMMENT ON V.E.3.a

Consider changing to, "The Permittee shall establish maintain background values established in accordance with the procedures..."

ILLINOIS EPA RESPONSE

Should the Permittee be required to revise their background, the language should be written to say "establish". However, "maintain" would also be appropriate. Therefore, the Illinois EPA will revise this condition as such:

"The Permittee shall establish and maintain established background values in accordance with the procedures specified in Section E of the approved Permit Renewal Application as well as the following procedures:"

REVISED AS INDICATED ABOVE

COMMENT ON V.I.3

Consider changing to: "For Constituents which have not been detected in the groundwater, a value of two times the practical quantitation limit (PQL) shall be used as the background concentration."

ILLINOIS EPA RESPONSE

The reviewer inadvertently left out "a value of two times" from this condition. Therefore, the Illinois EPA will revise this condition as indicated above.

REVISE AS INDICATED ABOVE

COMMENT ON V.J.2

Adjust these dates to August 1 and February 1, if acceptable.

ILLINOIS EPA RESPONSE

The dates, January 15, and July 15 are standard submission dates for semi-annual groundwater monitoring data reporting. This condition cannot be modified.

NO CHANGE

COMMENT ON V.J.10.e

Consider changing to: "Submit to the Illinois EPA athe Permittee has sought an alternate concentration limits under condition V.J.10.d.iv-above for every hazardous constituent identified under Condition V.J.10.b above."

ILLINOIS EPA RESPONSE

This condition models the 35 Ill. Adm. Code 724.198 regulations and therefore cannot be modified.

NO CHANGE

COMMENT ON V.J.10.e

"This plan must be submitted to the Illinois EPA within 180 days of the date the increase is discovered, except as provided in Condition V.J.11."

ILLINOIS EPA RESPONSE

The underlined portion above is requested to be added to the condition. However, V.J.10.e and V.J.11 are independent conditions. Condition V.J.11 specifically deals with demonstrating that a source other than the regulated unit caused the increase whereas Condition V.J.10.e discusses a corrective action feasibility plan to address exceedences resulting from the regulated unit. Therefore, this condition will not be revised.

NO CHANGE

COMMENT ON V.J.10.d

Consider changing to: "The application shall be submitted to the Illinois EPA within ninety (90) days of the date that the increase is discovered, except as provided in Condition V.J.11."

ILLINOIS EPA RESPONSE

The underlined portion above is requested to be added to the condition. However, V.J.10.d and V.J.11 are independent conditions. Condition V.J.11 specifically deals with demonstrating that a source other than the regulated unit caused the increase whereas Condition V.J.10.d discusses a establishing a compliance monitoring program to address exceedences resulting from the regulated unit. Therefore, this condition will not be revised.

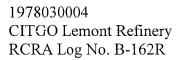
NO CHANGE

COMMENT ON V.J.10.e

Consider changing to: "Submit to the Illinois EPA a corrective action feasibility plan to meet the requirements of 35 Ill. Adm. Code 724.200 unless the concentrations of all those hazardous constituents identified under found at the compliance point pursuant to Condition V.J.10.b above are listed in 35 Ill. Adm. Code 620.410 and their concentrations do not exceed the respective Groundwater Quality Standards or the Permittee has sought an alternate concentration limits for them under Condition V.J.10.d.iv above for every hazardous constituent identified under Condition V.J.10.b above."

ILLINOIS EPA RESPONSE

The above condition is a requirement of 35 Ill. Adm. Code 724.198 regulations. Therefore, this condition cannot be revised.



NO CHANGE

COMMENT ON V.J.11.c

Consider changing to: "Submit to the Illinois EPA an application to make any appropriate changes to the Groundwater Detection Monitoring Program. This application must be submitted within ninety (90) days of the date that the increase is discovered. If the Permittee chooses not to make the demonstration as provided in Condition V.J.11 above, they shall apply for the permit modification within ninety (90) days of the date the increase is discovered. If the Permittee makes such a demonstration and the agency notifies them that the demonstration is unsuccessful, they shall submit a modification request within ninety (90) days of receipt of the notification. The Permittee need not submit the modification request if they successfully make the demonstration within the ninety (90) day time period as provided in Condition V.J.11 above and the Illinois EPA concurs."

ILLINOIS EPA RESPONSE

The 35 Ill. Adm. Code 724.198 regulations along with the conditions provided in Subsection J provide for the Permittee to make an alternate source demonstration. The proposed additional wording causes confusion as the regulations and conditions within this subsection are clear. Portions of the added language are not consistent with regulations. Therefore, this condition cannot not be revised.

NO CHANGE

COMMENT ON IX, PAGE IX-2 (FOR GROUNDWATER)

Row J.2: Adjust these dates to August 1 and February 1, if acceptable.

Row J.4: Adjust date to August 1, if acceptable.

Row J.6: Adjust date to August 1, if acceptable.

ILLINOIS EPA RESPONSE

Standard submission dates for semi-annual reporting is January 15, and July 15. Standard annual submission dates are July 15. Therefore, this condition cannot be revised.

NO CHANGE

EDITORIAL COMMENTS

COMMENT ON FACT SHEET III.C

The phrase "Detection Monitoring Program...shall be implemented" implies that the program has yet to start, when in fact; the Detection Monitoring Program has been ongoing for the duration of the current permit (more than 10 years).

ILLINOIS EPA RESPONSE

The renewal application was reviewed to make a determination as to the appropriate groundwater monitoring program for the subject regulated unit. Therefore, with the information you provided in the renewal application, the Illinois EPA believes that a Detection Monitoring Program is appropriate at this time. This condition will not be revised.

NO CHANGE

COMMENT ON FACT SHEET IV.5

The current Site-Wide Groundwater Monitoring Program actually consists of 37 monitoring wells which are routinely sampled; water-level gauging is performed at an additional 4 wells and 12 piezometers. Fifteen (15) of those 37 wells are corrective action program wells, which may eventually be added to the Site-Wide Groundwater Monitoring Program. Based on the cited fact sheet language, it could be inferred that 15 new wells may be added (i.e., installed). This is not the case.

ILLINOIS EPA RESPONSE

The fact sheet will not be revised and will not accompany the final permit. Therefore, no revisions are necessary.

NO CHANGE

COMMENT ON V.D.5

Consider changing to: "All information should be submitted to the appropriate State and/or local agencies."

ILLINOIS EPA RESPONSE

The Permittee states that the well construction reports and well sealing forms are submitted to Will County, not the state health department. Therefore, the Illinois EPA will revise the last sentence of Condition V.D.5 as follows:

"All information should be submitted to the appropriate State and/or local agencies."

REVISION AS INDICATED ABOVE

COMMENT ON V.E.3.a

Consider changing to: "Background groundwater quality monitoring wells for two (2) years."

ILLINOIS EPA RESPONSE

This condition actual reads "monitoring well" and therefore, no change is necessary.

NO CHANGE

COMMENT ON V.J.9

Consider changing to: "All submittals must contain should include tables of data drawings and text (as necessary) to accurately describe the information contained in the submittal."

ILLINOIS EPA RESPONSE

This condition appears to the Permittee to be a suggestion. It is not a suggestion. The inclusion of "as necessary" is tied to the requirement of "text" indicating that it may be necessary to describe in written form the information that is being provided. Therefore, this condition will not be revised.

NO CHANGE

COMMENT ON IX

Row J.10.a: Consider changing to: "Within 7 days after discovery confirmation of increase."

Row J.10.b: consider changing to: "Immediately after increase is discovered confirmed."

Row J.10.d: Consider changing to: "Within 90 days after discovery confirmation of increase."

Row J.10.e: Consider changing to: "within 180 days after discovery confirmation of increase."

Row J.11.a: Consider changing to: "Within 7 days after increase was discovered is confirmed."

Row J.11.b: Consider changing to: "Within 90 days after the increase was discovered is confirmed."

Row J.11.c: Consider changing to: "Within 90 days after the increase was discovered is confirmed."

ILLINOIS EPA RESPONSE

Changing the above from "discovered" to "confirmed" will require a change to Section V.J and will not be consistent with the regulatory requirements. Therefore, the Illinois EPA will not revise the above as proposed.

NO CHANGE

COMMENT ON ATTACHMENT C-1, III.C.9

Consider changing to: "Consistent with the Illinois EPA-approved Site-Wide Groundwater Management approach, the monitoring well network will include:"

Currently this condition says, "At a minimum:"

ILLINOIS EPA RESPONSE

The Illinois EPA does not believe the additional language is necessary. In addition, the Illinois EPA believes the language should be kept general in the event the facility chooses not to utilize a site-wide groundwater management approach. Therefore, the Illinois EPA will not revise this condition.

NO CHANGE

COMMENT ON ATTACHMENT C-1, III.C.9.b

Consider changing to: "At least one background monitoring well in each appropriate aquifer shall be installed hydraulically upgradient (i.e., in the direction of increasing static head) from the limit of the SWMUs or other contaminant sources at the facility."

ILLINOIS EPA RESPONSE

This condition currently includes the requested additional language. Therefore, no change is required.

NO CHANGE

COMMENT ON ATTACHMENT C-1, III.C.9.c

Consider changing to: "Monitoring wells in each appropriate aquifer shall be installed hydraulically downgradient (i.e., in the direction of decreasing static head) from of the SWMUs."

Current language says "at the limit of the SWMUs or SWMU group."

ILLINOIS EPA RESPONSE

The requested change appears to be an editorial change. Therefore, the Illinois EPA will approve the revision of this condition as indicated above.

REVISE AS INDICATED ABOVE

COMMENT ATTACHMENT C-1, III.E.5

Consider changing to: "The Group 1 Phase I/II Workplan and any other workplans for investigating groundwater (such as Site-Wide Groundwater Management workplans) must provide...."

ILLINOIS EPA RESPONSE

The Illinois EPA does not believe the additional language is necessary. In addition, the Illinois EPA believes the language should be kept general in the event the facility chooses not to utilize a

site-wide groundwater management approach. Therefore, the Illinois EPA will not revise this condition.

NO CHANGE

COMMENT ON ATTACHMENT C.III.E.5

Consider changing to: "The information regarding the hydrogeology and hydrology at the facility should include:"

ILLINOIS EPA RESPONSE

The Illinois EPA does not believe the revised language is necessary. Therefore, the Illinois EPA will not revise this condition.

NO CHANGE

ATTACHMENT C-1, III.F.3

Consider changing to: "The information to be provided or updated regarding the investigation of hydrogeology and hydrology at the SWMUs includes (as applicable):"

ILLINOIS EPA RESPONSE

The Illinois EPA does not believe the revised language is necessary. Therefore, the Illinois EPA will not revise this condition.

NO CHANGE

REVISIONS MADE TO THE DRAFT RENEWAL PERMIT

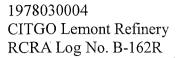
The following conditions will be changed as follows (Note: underlined is added text and strikethrough is deleted text):

Condition V.E.3.a

The Permittee shall establish <u>and maintain established</u> background values in accordance with the procedures specified in Section E of the approved Permit Renewal Application as well as the following procedures:

Condition V.I.3

For Constituents which have not been detected in the groundwater, <u>a value of two times</u> the practical quantitation limit (PQL) shall be used as the background concentration.



Condition V.D.5

The Permittee shall submit boring logs, construction diagram and data sheets from installation and development of a new or replacement well to the Illinois EPA at the address below within thirty (30) days of the date that installation of the well is completed. In addition, the Permittee shall submit certification that plugging and abandonment of a well was carried out in accordance with the approved procedures to the Illinois EPA at the address below within thirty (30) days of the date that the well was abandoned. All information should be submitted to the appropriate State and/or local Agencies.

ATTACHMENT C-1, III.C.9.c

Monitoring wells in each appropriate aquifer shall be installed hydraulically downgradient (i.e., in the direction of decreasing static head) at the limit of the from the SWMU or SWMU group. Their number, locations and depths must ensure that they allow for detection of releases of hazardous waste or hazardous constituents from the SWMU(s).

IV. RESPONSES TO COMMENTS by the CAU

Illinois EPA's Response to the General Comments (Attachment 1) Provided Regarding the Soil and General Administrative Aspects of the Corrective Action Program

Throughout the draft renewal permit regarding the title of Attachment C-1 CITGO Comment

Consider changing to "Guidance for Conducting a RCRA Facility Investigation"

IEPA Response

As the RFI has been conducted for this facility in accordance with the approved plans at the facility, the language modification as requested is acceptable.

Change to Permit

All references to the title Attachment C-1 throughout the permit will be modified to read: "Guidance for Conducting a RCRA Facility Investigation"

Throughout the Draft Permit regarding the title of Attachment D

CITGO Comment

Consider changing to:

"Attachment D - Corrective Measures Program Overview"

IEPA Response

The modification of the title as requested is acceptable for this facility.

Change to Permit

All references to the title of Attachment D throughout the permit will be modified to read: "Corrective Measures Program Overview"

Condition VI.A.8

CITGO Comment

The Lemont refinery considers the Open Flow Ditches (SWMU 40) Investigation completed. Please address in the permit.

IEPA Response

It is discussed in VI.D.5. This Condition specifically states:

"CITGO completed the inspection and maintenance activities for Open Flow Ditches (SWMU No. 40) in 2005, which consisted of approximately 26,000 linear feet of open ditches at the facility." Also see the comment/response to Condition VI.D.5 below.

Change to Permit

No change was made to the condition.

Condition VI.B.2

CITGO Comment

Does "SMWU 15C" need to be added to the Group 2 Tables? NFA was received on 9/27/02.

IEPA Response

SWMU 15C was closed under a "Closure by Removal Demonstration" under the RCRA Closure and Post-Closure section of the Permit, not under Corrective Action program. Thus, it was determined that SWMU 15C need not be included in Corrective Action section.

Change to Permit

No change was made to the condition.

Condition VI.B.2

CITGO Comment

Does "SMWU 40 - Open-Flow Ditches" need to be added to Group 2 Table?

IEPA Response

In this renewal Permit, SWMUs subject to sewer inspection and maintenance activities, specifically SWMUs 38, 39, and 40, are addressed under Condition VI.D. Those areas found to be required of further investigation after the sewer inspection are listed in Condition VI.B.4.

Change to Permit

No change was made to the condition.

Condition VI.B.2, TABLE, CA Status

CITGO Comment

For SWMUs 5, 25C, 35:

Consider changing to: "Phase I RFI report approved and NFA issued on 11/4/10."

For SWMUs 10, 13, 15A,-B, 18, 19A, 19C, 20, 25B:

Consider changing to: "Phase I RFI report and proposed Phase II RFI activities approved on 11/4/10."

For SWMUs 10, 13, 15A,-B, 18, 19A, 19C, 20, 25B:

Consider changing to: "Phase I RFI report and proposed Phase II RFI activities approved on 11/4/10."

For SWMU 43J:

Consider changing to: "NFA for soil only was issued on 2/24/10. ELUC required for I/C use. Engineered and CWPP in place."

IEPA Response

The requested modifications are acceptable. The draft renewal permit did not include the corrective action status changes of the SWMUs mentioned above since issuance of the IEPA November 4, 2010 letter (Log No. B-162-CA-103 thru 113). Thus, the SWMU status on the table in Condition VI.B.2 shall be updated as requested by CITGO.

For SWMU 43J, an ELUC is required for Industrial/commercial (I/C) use, engineered barrier and construction worker Precaution Plan (CWPP). The modification will reflect the requirement. IEPA will insert the language that engineered barrier has been installed in place. Note that I/C and CWPP are defined in Condition VI.B.2 of the renewal permit.

Change to Permit

Portions of Table were modified to (bold):

SWMU	Name	CA Status	Need to Address GW?
5	Former Dump Area for Lime Sludge Seneca Tank Location	NFA issued on 11/4/10. ELUC required for I/C.	No
10	North Plant Heat Exchanger Bundle Cleaning Pad	Phase II RFI workplan has been approved.	TBD

			Need to
<u>SWMU</u>	Name	<u>CA Status</u>	Address GW?
13	Sludge Drying Area	Phase II RFI workplan has been approved.	TBD
15A-B	Wastewater Treatment Sludge Decant Basin within Land Treatment Facility	Phase II RFI workplan has been approved.	TBD
18	Waste Staging Area	Phase II RFI workplan has been approved.	TBD
19A	Former Sludge Drying Area	Phase II RFI workplan has been approved.	TBD
19C	Former Sludge Drying Area	Phase II RFI workplan has been approved.	TBD
20	Active Drum Staging Area	Phase II RFI workplan has been approved.	TBD
25B	Heat Exchanger Bundle Cleaning Pad	Phase II RFI workplan has been approved.	TBD upon Closure
25C	Supplementary Heat Exchanger Bundle Cleaning Pad Cleaning Building	NFA issued on 11/4/10. ELUC required for I/C.	No
35	Red Dye Spill Area	NFA issued on 11/4/10. ELUC required for I/C.	No
43J	Pipeline Release Near Tanks 92 and 108	NFA for Soil only was issued on 2/24/10. ELUC required for I/C, engineered barrier (installed), and CCWPP.	Yes
44	Spill at the Gasoline Transfer Line	Phase II RFI workplan has been approved.	TBD .

Condition VI.B.3

CITGO Comment

Proposed new Condition VI.B.3.e:

"Subsequently CITGO submitted an updated "Site-Wide Groundwater Management Program, Proposed Work Plan for Future Groundwater Management" dated September 23, 2010 to address items in the April 26, 2010 approval letter. This workplan is currently under Illinois EPA review."

Accordingly renumber Condition VI.B.3.e to VI.B.3.f.

IEPA Response

IEPA's April 26, 2010 letter is addressed in Attachment C-2.I. CITGO's September 2, 2010 report is addressed in Attachment C-2.II. As the September 2010 report has not been reviewed and approved, it will be not included in Condition VI.B.3.

Change to Permit

No change was made to the condition.

Condition VI.B.4

CITGO Comment

Consider adding "SMWU 40 - Open-Flow Ditches" to this section.

IEPA Response

In this renewal Permit, Condition VI.B.4, the only SWMUs listed in this condition are the SWMUs found from the sewer inspection. Thus, SWMU 40 does not need to be listed in this Condition.

Change to Permit

No change was made to the condition.

Condition VI.C.5

CITGO Comment

Consider changing to:

"Attachment D provides an overview of each Phase of the CMP."

IEPA Response

The language can be modified as requested.

Change to Permit

The first sentence will be modified to:

Attachment D provides an overview of each Phase of the CMP.

Condition VI.D.5

CITGO Comment

Consider adding statement:

"The report documenting the completed inspection of the Open Flow Ditches was approved in the Agency letter dated 6/8/06."

IEPA Response

The condition reads: "CITGO completed the inspection and maintenance activities for Open Flow Ditches (SWMU No. 40) in 2005, which consisted of approximately 26,000 linear feet of open ditches at the facility." However, as requested, Illinois EPA will insert the date of the letter (6/8/06).

Change to Permit

At the end of this condition the following sentence will be inserted:

The 2005 RCRA Sewer Investigation Report documenting the inspection of SWMU 40 was approved on 6/8/06.

Condition VI.F

CITGO Comment

Consider changing to:

"Upon the Illinois EPA'sthe procedures set forth in Conditions VI.B, in accordance with the implementation schedule specified in the request..."

CITGO indicated that "Conditions VI.C and VI.D do not apply to the RFI associated with the SWMUs listed in Condition B.2. Further, there is no timeline relative to the effective date of the permit in Condition VI.B. CITGO therefore requests reference to Conditions VI.C and VI.D be deleted and reference to commencement tied to the IEPA request".

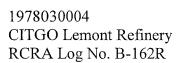
IEPA Response

Conditions VI.C and VI.D apply for the future releases from SWMUs. A newly discovered SWMU may be subject to requirements of VI.C (Corrective Measures Requirement) or Sewer Inspection and Maintenance program, which will be required to follow conditions in VI.D.

As requested, "the effective date of the permit" is no longer valid in this condition as they facility has been conducting RFI. This condition is modified to reflect on the current condition at the facility. However, the requested language "in accordance with the implementation schedule specified in the request" is not acceptable. It must be a date approved by Illinois EPA.

Change to Permit

The last sentence in this condition will read as:



"Upon the Illinois EPA's written request, the Permittee shall determine the nature and extent of the contamination by following the procedures set forth in Conditions VI.B through VI.D, beginning on the date approved by Illinois EPA."

Condition VI.G3

CITGO Comment

Consider changing to:

"Within 120 calendar days... the requirements of VI.B through VI.E above.

IEPA Response

In some cases, SWMU Assessment plan may be subject to the requirements in conditions VI.C, VI.D, and VI.E, not just Condition VI.B.

Change to Permit

No change was made to the condition.

Condition VI.G.5

CITGO Comment

Consider changing to:

"The Illinois EPA's response will be similar to that described in Conditions VI.B $\frac{\text{through VI.E}}{\text{above}}$."

IEPA Response

In some cases, a SWMU Assessment plan may be subject to the requirements in conditions VI.C, VI.D, and VI.E, not just Condition VI.B.

Change to Permit

No change was made to the condition.

Attachment C-1, III.C.9

CITGO Comment

Consider changing to:

"Documentation that groundwater is being evaluated as part of the Site-Wide Groundwater Management Program, for any of the SWMUs identified in the RFI as having groundwater as a media of concern. Groundwater monitoring shall be performed as specified in Condition VI.B.3 of this permit. Sampling and analysis of groundwater monitoring wells will be carried out in accordance with the Sampling and Analysis Plan as specified in III.E.3 below."

IEPA Response

This is condition is provided as a requirement for the facility to follow the approved QAPP for groundwater sampling. If a specific QAPP has been modified to reflect the current status, then

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the facility will still have to meet the requirements of this condition and Attachment C-1, III.G as well.

Change to Permit

No change was made to the condition.

Attachment C-1, III.C.9.c

CITGO Comment

Consider adding at end of condition:

"It is acknowledged that in some instances, releases from the SWMUs may not be discernable from contamination from other sources in proximity to the SWMU(s)."

IEPA Response

CITGO's proposal shall be determined as a result of investigation. It is not appropriate to be included in this condition.

Change to Permit

No change was made to the condition.

Attachment C-1, III.E

CITGO Comment

First sentence reads:

"The following information must be provided as part of the RFI Phase I Workplans."

Consider changing to:

"To the extent applicable, the following information shall be provided as part of the RFI Phase I Workplans. Note that a RFI Phase I has already been conducted for known SWMUs as of the effective date of this Permit. A RFI Phase I Workplan will be developed in accordance with the procedures of this Section for any newly identified SWMUs."

Consider adding at end of first sentence:

"Note that a Phase I RFI has already been conducted for known SWMUs at the effective date of this Permit. An RFI Phase I Workplan will be developed in accordance with the requirements of this Section for any newly identified SWMUs."

IEPA Response

As the modified title of the document indicates, this is a guidance for conducting RFI. Any newly discovered SWMUs are still subject to all the conditions in this Attachment C-1. CITGO's efforts for conducting corrective action thus far have been addresses in Section VI and Attachment C-2 of the permit. No additional language as requested in this condition is necessary at this time.

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Change to Permit

No change was made to the condition.

Attachment C-1, III.F

CITGO Comment

Heading reads:

"INFORMATION REQUIRED SPECIFICALLY IN THE RFI PHASE II WORKPLANS"

Consider changing to:

"RFI PHASE II WORKPLAN INFORMATION"

IEPA Response

CITGO's request for the language change is acceptable.

Change to Permit

Title of Attachment C-1, III.F will be modified to read as:

"RFI PHASE II WORKPLAN INFORMATION"

Attachment C-1, III.F.3

CITGO Comment

Consider changing the first sentence to:

"The Phase II hydrogeologic and geologic investigation information has been incorporated into the Illinois EPA-approved Site-Wide Groundwater Management approach for the site. The Site-Wide Groundwater Management program documents provide descriptions of the groundwater monitoring systems which will provide adequate data on the detection, nature, extent and rate, and concentration of releases from the SWMUs to the groundwater at the facility, to the extent discernable from other potential contaminant sources."

IEPA Response

Whether the release is discernable from contamination from other source or not is determined by conducting appropriate investigation, as described in the original language of this condition. To include the current investigation status at the facility, the following language will be inserted after the first sentence: This information may be incorporated into the Site-Wide Groundwater Management or other program as approved by Illinois EPA.

Change to Permit

The following language will be added to after the first sentence of this condition: This information may be incorporated into the Site-Wide Groundwater Management or other program(s) approved by Illinois EPA.

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Attachment C-1.III.F.3.c

CITGO Comment

Consider changing to:

"A description of the extent of contamination in groundwater associated with a release from a SWMU, to the extent discernable from other contaminant sources, including:"

IEPA Response

Information required in this condition must be provided regardless of where the contamination is originated from. If the contamination is identified to being not discernable from other source, CITGO is required to provide the information.

Change to Permit

No change was made to the condition.

Attachment C-2, 7/29/10, B-162-CA-142

CITGO Comment

Typographical correction to:

"Approved the proposal to submit a RFI workplan by 8/31/10 for this new SWMU."

IEPA Response

"IEPA Action Taken" for 7/29/10 will be modified as requested.

Change to Permit

IEPA Action Taken for 7/29/10 will be modified as (in **bold**):

7/29/10 B-162-CA-142		Approved the proposal to submit a RFI workplan by
	Fill Area)	8/31/10 for this new SWMU.

Attachment C-2, 7/29/10, B-162-A-103 to 109, 110 to 113, 10/2/08

CITGO Comment

Move the submittal and associated information into Attachment C-2, Section I. Group 2 Phase I RFI Reports for the following SWMUs: 5, 10, 13, 15A/B, 18&19A, 19C, 20 25B, 25C, 35 and 44 (B-162-CA-103 thru109 and 110 thru 113) is listed in Attachment C-2, Section I (Submittals under Illinois EPA Review).

IEPA Response

The Table I and Table II will be modified to update the current Status of those submittals. The changes will include:

- Modification of the date underneath the title to March 2011.
- Insertion of EPA's 11/4/10 letter (B-162-CA-103 thru 113) is included in the Table I.
- Removal of Submittals B-162-CA-103 thru 113 from Table II.
- Insertion of CITGO's five submittals submitted between January and March of 2011 to Table II.

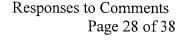
Change to Permit

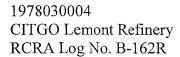
- On the Page C2-1 of C2-11 under the title of Attachment C-2 will be modified from (Updated October 2010) to: (Updated March 2011)
- Regarding the Table in Section C-2.I, the following row will be added to the table:

following SWMUs: 5,10, 13,	NFR was issued for SWMUs 5, 25C, and 35with ELUC for I/C use. Phase II RFI was required for SWMUs 10, 13, 15,A/B, 18 & 19A, and 19C, 20,
25C, 35 and 44	13, 15,A/B, 18 & 19A, and 19C, 20, 25B and 44.

- Regarding the Table in Section C-2.II, the row with the following submittals will be deleted from the table: B-162-CA-103 thru, 109 and 110 thru 113, 10/2/08.
- Following rows will be inserted at the end of Table II:

B-162-CA-147 1/18/11	Request to removed manganese for GW Monitoring Parameter List
B-162-CA-148 2/7/11	Soil Investigation Report for 2009 Sewer Defects
B-162-CA-149 3/14/11	Phase II RFI Report for SWMU 10
B-162-CA-150 3/14/11	Phase II RFI Report for SWMU 20
B-162-CA-151 3/14/11	Phase II RFI Report for SWMU 25A





Attachment D, Section 1.0, 2

CITGO Comments (2 comments for the same condition)

Consider changing to:

"The required corrective actions shall be those actions necessary to protect human health and the environment from all releases of hazardous wastes, or hazardous constituents, listed in Appendix H of 35 Ill. Adm. Code Part 721, associated with the Modified Skinner List of constituents provided in the approved Permit Renewal Application from any SWMUs above site-specific cleanup objectives."

Considering changing to:

"...constituents associated with as defined by the Modified Skinner List of constituents."

IEPA Response

As the RFI has been conducted at numerous SWMUs and the modified Skinner's list for the facility was approved as the analytical parameters for the facility, it is acceptable to make the changes to reflect the decision in this condition. However, to make the language consistent with Condition VI.A.1.b of the permit, "listed in" will be used instead of "associated with" or "defined by".

Change to Permit

Attachment D, Condition 1.0, 2 will read as (modification in **bold**):

Based on the results of the RFI, developing and implementing a Corrective Measures Program which describes the necessary corrective actions which will be taken. The required corrective actions shall be those actions necessary to protect human health and the environment from all releases of hazardous wastes, or hazardous constituents, listed in Appendix H of 35 Ill. Adm. Code Part 721, from any SWMUs above site-specific cleanup objectives. The required corrective actions shall be those actions necessary to protect human health and the environment from all releases of hazardous wastes, or hazardous constituents, listed in **the Modified Skinner List of constituents provided in the approved Permit Renewal Application** from any SWMUs above site-specific cleanup objectives."

Illinois EPA's Response to the Editorial Comments (Attachment 2) Provided Regarding the Soil and General Administrative Aspects of the Corrective Action Program

Fact Sheet IV

CITGO Comment

A total of 52 SWMUs, not 54, have been identified at the Refinery as of the date of the draft Permit.

IEPA Response

There are 26 SWMUs in the Group I Table in Condition VI.B.2; SWMUs 2A-E and SWMUs 31B-E are all considered as separate SWMUs. In a same manner, there are 28 SWMUs identified in the Group II Table in Condition VI.B.2. Together, there are 54 SWMUs of concern at the facility subject to Condition VI.B.2.

Change to Fact Sheet

No change was made.

Fact Sheet IV

CITGO Comment

Insert the following sentence between the second and third sentence:

"There are also SWMUs which have been identified from the RCRA sewer inspections completed to date."

IEPA Response

The request is unnecessary as the subsequent paragraph addresses the SWMUs from the sewer inspection.

Change to Fact Sheet

No change was made.

Fact Sheet IV

CITGO Comment

It reads: "In addition, SWMUs identified through the Sewer Inspection and Maintenance Program for the entire facility are also..."

Consider changing to: "The SWMUs identified through the Sewer Inspection and Maintenance Program, for the entire facility, are also..."

IEPA Response

IEPA determined that requested changes are unnecessary.

Change to Fact Sheet

No change was made.

Fact Sheet IV

CITGO Comment

Last sentence of second paragraph reads:

"In addition, SWMUs identified through the Sewer Inspection and Maintenance Program for the entire facility are also included in the Corrective Action Program."

Sewer Inspection and Maintenance is an ongoing program; SWMUs have been and could in the future continue to be identified as part of that program. The language could be misinterpreted to imply that the Sewer Inspection and Maintenance Program has been completed (i.e., is past tense).

IEPA Response

It was IEPA's intension to include ALL SWMUs identified (in the past or future) from the sewer inspection program to be included in corrective action program. CITGO's comment is noted.

Change to Fact Sheet

No change was made.

Fact Sheet IV.1

CITGO Comment

A total of 19 SWMUs are listed in Group 1; two of these SWMUs (2A-E and 31B-E) contain clusters but are treated as single SWMUs.

IEPA Response

IEPA is identifying SWMUs 2A-E and 31B-E as all separate SWMUs (9 SWMUs).

Change to Fact Sheet

No change was made.

Fact Sheet IV.2

CITGO Comment

A total of 27 SWMUs are currently listed in Group 2; one SWMU (15A-B) is a pair but is treated as a single SWMU. Also, as of the date of the draft Permit, the facility has conducted Phase I RFI at all SWMUs, including the newly discovered SWMU (SWMU 45).

IEPA Response

IEPA is identifying SWMUs 2A-E and 31B-E as two separate SWMUs.

Change to Fact Sheet

No change was made.

Fact Sheet IV.5

CITGO Comment

The Refinery's remediation systems also include the Barge Dock Interceptor Trench, which was not listed. Also, for clarification, the French Drain System is located along New Avenue.

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IEPA Response

As commented by CITGO, the Barge Dock Interceptor Trench was left out. Note was taken regarding the French Drain System.

Change to Fact Sheet

No change was made.

Condition VI.A.1.b

CITGO Comment

Consider changing to

"...hazardous constituents, listed in the aforementioned Modified Skinner List...".

IEPA Response

It is an editorial error and will be corrected as requested.

Change to Permit

Condition VI.A.1.b will read as (change in **bold**):

b. based upon the results of the RFI, developing and implementing a Corrective Measures Program which describes the necessary corrective actions which will be taken. The required corrective actions shall be those actions necessary to protect human health and the environment from all releases of hazardous wastes or hazardous constituents, listed in **the** aforementioned Modified Skinner List of constituents for the facility, above site-specific cleanup objectives from any of the SWMUs.

Condition VI.A.3

CITGO Comment

Consider changing to:

"The facility has completed a substantial amount of investigation and, as necessary, remediation at these select SWMUs."

IEPA Response

The requested change is acceptable.

Change to Permit

Condition VI.A.3 will read as (change in **bold**):

3. The facility has completed a substantial amount of investigation and, as necessary, remediation at **select** SWMUs. This permit summarizes the corrective action activities completed to date and identifies the efforts which must still be carried out to complete corrective action for the SWMUs of concern at the facility

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Condition VI.A.8

CITGO Comment

Consider changing to:

"The Permittee must conduct......wastewater sewer system, in accordance with the approved plans."

IEPA Response

The requested change is not necessary.

Change to Permit

No change was made to the condition.

Condition VI.B

CITGO Comment

Consider changing to:

(First sentence) "The RFI for each SWMU is carried out in two-phases."

(Second sentence)"Each <u>necessary</u> phase will provide for a more detailed evaluation of each <u>Solid Waste Management Unit-SWMU</u> identified."

(Forth sentence)"Phase II will define the nature and extent of any release from the SWMU to soil and toz groundwater, and surface water/sediments (as applicable). "

IEPA Response

The corrective action section of the permit is written to carry out the RFI in two phases (I and II) for this facility. Addition of work "necessary" is not appropriate for this condition as it generally describes each phase. Necessity of conducting Phase II is determined at Phase I, which is described in Attachment C-1 of the permit. Furthermore, during Phase II RFI the facility will be required to determine the nature and extent to all media as described in the permit (i.e. determine if any of the media is impacted, and if so, what the nature of the impact is). Editorial modification of Solid Waste Management Unit to SWMU will be made.

Change to Permit

The second paragraph of Condition VI.B will read as:

The RFI for each SWMU is carried out in two phases. Each phase will provide for a more detailed evaluation of each SWMU identified. Phase I will define whether a release from the SWMU has occurred to the environmental media of concern. Phase II will define the nature and extent of any release from the SWMU to soil, groundwater, and surface water/sediments. A

more detailed discussion of the goals of each phase of the RFI is presented in Section II of Attachment C-1. The Scope of Work for the RFI is provided as Attachment C-1 to the Permit.

Condition VI.B.2

CITGO Comment

Consider changing to:

(Second sentence) "The SWMUs <u>initially identified were grouped</u> into two categories (<u>Group I and Group II</u>) based on their estimated potential risk to human health and the environment."

(Last sentence) "In addition, all new SWMUs discovered during the course of carrying out this corrective action program are added to Group 2 <u>including those identified as part of the RCRA Sewer inspection activities</u> (please note that this is not a complete listing of SWMUs at the subject facility)."

IEPA Response

Requested changes to the second sentence are acceptable to IEPA. Editorial changes for Group 1 and 2 to Group I and Group II are made throughout the permit. Those SWMUs identified from Sewer Inspections activities are identified thus far in Condition VI.B.4. As indicated in the Condition VI.B.4, it is not a complete list of SWMUs.

Change to Permit

Condition VI.B.2 will read as:

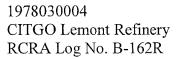
2. Based upon the results of the RCRA Facility Assessment which was conducted by the Illinois EPA for this facility, the SWMUs identified in the following table must be evaluated in the RFI for potential releases to certain environmental media of concern also identified in the table. The SWMUs initially identified were grouped into two categories (Group I and Group II) based on their estimated potential risk to human health and the environment. The Group I SWMUs have either had known releases in the past or pose the highest potential for releases that could impact the environment. Group II SWMUs are not known to have had a release and have a low potential for impact. In addition, all new SWMUs discovered during the course of carrying out this corrective action program are added to Group II (please note that this is <u>not</u> a complete listing of SWMUs at the subject facility).

Condition VI.B.10.d (iii)

CITGO Comment

Consider changing to:

"Identify those SWMUs investigated as part of the Phase II RFI for which supplemental investigations must be conducted."



IEPA Response

Requested changes are acceptable to IEPA.

Change to Permit

Condition VI.B.10.d (iii) will read as:

iii. Identify those SWMUs investigated as part of the Phase II RFI for which supplemental investigation must be conducted.

Condition VI.D.4

CITGO Comment

Second sentence reads:

"If a defect is determined to required additional environmental investigation, a workplan shall be developed and submitted for further corrective action investigation and remediation as necessary. Each of these defects will be assigned a SWMU ID and any further corrective action will be conducted in accordance with the procedures set forth in Sections VI.B and VI.C of this Permit."

IEPA Response

Requested change is not acceptable. All sewer investigations required under this section must be conducted in accordance with the permit, which may include other investigation, such as determination of structural integrity as approved by IEPA, as necessary.

Change to Permit

No change was made to the condition.

Condition VI.G.1

CITGO Comment

Consider changing to

"For the purposes of this permit, A newly-identified SWMUs shall mean all SWMUs..."

IEPA Response

Editorial error will be corrected as requested.

Change to Permit

Condition VI.G.1 will read as:

1. The Permittee shall notify the Illinois EPA's BOL in writing of any newly-identified SWMU(s) discovered during the course of groundwater monitoring, field investigations, environmental audits, or other means, no later than sixty (60) calendar days after discovery. For the purposes of this permit, newly-identified SWMUs shall mean all SWMUs located at the subject facility for which corrective actions have not previously

been required by this permit, or which have not been previously listed in the RFA for this facility. The notification shall provide the

Condition VI.H.1

CITGO Comment

Consider changing to

"The notification from the Illinois....requirements of Condition VIE above."

IEPA Response

Editorial error will be corrected as requested.

Change to Permit

Last paragraph of Condition VI.H.1 will read as:

CITGO shall be notified in writing if the Illinois EPA's BOL approves the request that the corrective actions can be considered complete. The notification from the Illinois EPA's BOL to CITGO may include a release from the financial requirements of Condition VI.E above. This action shall be subject to the appeal provisions set forth in Section 39(a) and 40(a) of the Environmental Protection Act.

Attachment C-1, II.2

CITGO Comment

Consider changing to:

"The purpose of Phase II including soil and groundwater, and/or surface water (as applicable)."

IEPA Response

This is a standard condition, and the requirement of this condition for the facility under the corrective action program is as written.

Change to Permit

No change was made to the condition.

Attachment C-1, III.E

CITGO Comment

Consider changing to:

"RFI PHASE I WORKPLAN INFORMATION"

IEPA Response

The requested modification is acceptable.

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Change to Permit

Attachment C-1, III.E title will read as:

"RFI PHASE I WORKPLAN INFORMATION"

Attachment C-1, III.E.3

CITGO Comment

Heading reads:

"Soil Sampling/Analysis Plan"

Consider changing to:

"Sampling and Analysis Plan"

IEPA Response

The heading on the draft permit already reads as requested.

Change to Permit

No change was made to the condition.

Attachment C-1, III.E.6

CITGO Comment

Consider changing to:

"The Group 1 Phase I/H workplan must contain data..."

IEPA Response

The requested modification is acceptable

Change to Permit

Attachment C-1, III.E.6 will read as:

The Group I Phase I workplan must contain data describing the human populations and environmental systems within a radius of 1,500 feet of the facility boundary that may be affected by releases from SWMUs must be collected and submitted. The following characteristics shall be identified.

Attachment C-1, III.E.7

CITGO Comment

Consider deleting

IEPA Response

This requirement cannot be removed as it is a required activity for select Group II SWMUs.

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Change to Permit

No change was made to the condition.

Attachment C-1, III.F.3.b

CITGO Comment

Reads:

"Procedures for obtaining information identified in III.F.3.a above which was not obtained during preparation of the workplan, as required to characterize the release at the SWMU."

Consider changing to:

"Procedures for obtaining information identified in III.F.3.a above which <u>has not already been</u> <u>obtained to date</u> to characterize the release at <u>a SWMU, SWMU group, or on a Site-Wide basis."</u>

IEPA Response

This is a standard condition still applies as it is written for Phase II workplans. Regardless of the procedures approved by IEPA (whether it is a SWMU-by-SWMU basis, or SWMU Group, or Site-Wide), the characterization of the groundwater contamination must be still be addressed for each SWMU.

Change to Permit

No change was made to the condition.

Attachment C-1, III.H

CITGO Comment

Consider changing to:

"The Permittee shall develop and initiate a Data Management Plan, to be incorporated into the QAPP and/or SAP, to document and track.

IEPA Response

It can be but not necessary to be incorporated Data Management Plan into the QAPP and/or SAP.

Change to Permit

No change was made to the condition

Attachment C-2

CITGO Comment

"CITGO's 7/12/05 submittal entitled, Withdrawal of January 14, 2004 Proposal Regarding sSorm Storm Water Basin (SWB) Material at the Land Treatment Facility (LTF) and Notice of Plan for Final Grading of SWB Material at the LTF, rec'd on 7/15/05."

1978030004 CITGO Lemont Refinery RCRA Log No. B-162R Responses to Comments Page 38 of 38

IEPA Response

It is an editorial error and will be corrected as requested.

Change to Permit

Attachment C-2, 2/27/06, B-162CA-1&8, Description of Submittal will read as:

• CITGO's 7/12/05 submittal entitled, Withdrawal of January 14, 2004 Proposal Regarding Storm Water Basin (SWB) Material at the Land Treatment Facility (LTF) and Notice of Plan for Final Grading of SWB Material at the LTF, rec'd on 7/15/05.

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ILLINOIS ENVIRONMENTAL PROTECTION AGENCY

1021 North Grand Avenue East, P.O. Box 19276, Springfield, Illinois 62794-9276 • (217) 782-2829 James R. Thompson Center, 100 West Randolph, Suite 11-300, Chicago, IL 60601 • (312) 814-6026

PAT QUINN, GOVERNOR

HAZARDOUS WASTE MANAGEMENT RCRA PERMIT

1978030004 – Will County USEPA ILD 041550567 CITGO, Lemont Refinery

Log No: B-162R

RCRA Permit – Admin Record File

Permit Approval

Issue Date: April 8, 2011 Effective Date: May 13, 2011 Expiration Date: May 13, 2021

PERMITTEE

CITGO Petroleum Corporation 135th Street and New Avenue Lemont, Illinois 60439-3659

A renewed RCRA Post-Closure permit is hereby granted to PDV Midwest Refining, LLC as Owner, and CITGO Petroleum Corp. as Operator and Permittee pursuant Section 39(d) of the Illinois Environmental Protection Act and Title 35 Illinois Administrative Code Subtitle G (35 Ill. Adm. Code).

This permit requires CITGO to close and provide post-closure care for the four areas in the hazardous waste land treatment facility (LTF) at the CITGO Lemont Refinery in accordance with the approved permit application and the conditions in this permit. The CITGO Lemont Refinery is located at 135th Street and New Avenue in Lemont, Illinois.

This permit consists of the conditions contained herein and those in the sections and attachments in this permit. The Permittee must comply with all terms and conditions of this permit and the applicable regulations contained in 35 Ill. Adm. Code Parts 702, 703, 705 and 720 through 729 in effect on the effective date of this permit.

This permit is issued based on the information submitted in the approved permit application identified in Section II of this permit and any subsequent amendments. Any inaccuracies found in the information provided in the permit application may be grounds for the termination or modification of this permit (see 35 Ill. Adm. Code 702.187 and 702.186) and potential enforcement action (415 ILCS 5/44(h)).

Sincerely,

Stephen F. Nightingale, P.E.

Manager, Permit Section

Bureau of Land

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RCRA POST-CLOSURE PERMIT

CITGO Lemont Refinery USEPA ID No: ILD041550567 STATE ID No: 1978030004

Log No: B-162R

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SECTION I – GENERAL FACILITY DESCRIPTION

I.A. OWNER

The facility owner is PDV Midwest Refining, LLC, herein referred to as the "owner". [35 IAC 702.123 & 703.181]

PDV Midwest Refining, LLC 750 Lexington Ave., 10th Floor New York, New York 10020

I.B. OPERATOR

The facility operator is the CITGO Petroleum Corporation, herein referred to as the "Permittee." [35 IAC 702.121, 702.123 & 703.181]

The Lemont Refinery, CITGO Petroleum Corporation 135th Street & New Avenue Lemont, IL 60439-3659

I.C. <u>LOCATION</u>

I.C.1. Location of Facility

The CITGO Lemont Refinery is located in Will County in Illinois. CITGO owns approximately 900 acres at this location with approximately 13.5 acres devoted to the management of hazardous waste in four areas in the hazardous waste land treatment facility (LTF). The CITGO Lemont Refinery is located at:

The Lemont Refinery, CITGO Petroleum Corporation 135th Street & New Avenue Lemont, IL 60439-3659

The general phone number for the facility is 630-257-4000.

I.C.2 Facility Layout Maps

The general location of the CITGO Lemont Refinery is shown in Figure 1. The four hazardous waste land treatment areas at the LTF are shown below on Figure 2.

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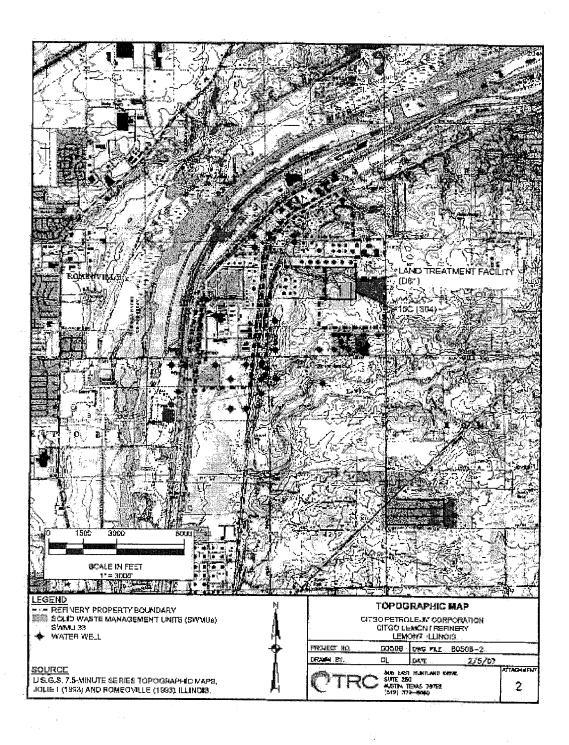


Figure 1: CITGO Lemont Refinery

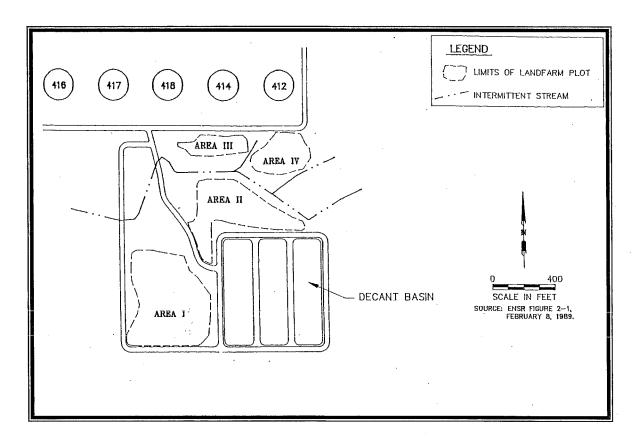


Figure 2: Land Treatment Areas, Intermittent Stream, & Decant Basin

I.D. DESCRIPTION OF HAZARDOUS WASTE MANAGEMENT ACTIVITIES

Operations began at the LTF when Area I was opened in 1973. The remaining three areas were opened in 1980. Wastes were either directly applied to the soil or were dewatered in adjacent decant basins. After dewatering, the solids were then placed on the land treatment areas. After waste was applied, it was incorporated into the soil.

API separator sludge (a listed hazardous waste: K051), was treated at the LTF until September, 1981. After that time, only nonhazardous wastes were applied to the land treatment areas. These nonhazardous wastes included clear well sludge, cooling tower sludge, heavy oil sludge, stormwater basin dredgings and water/wastewater treatment sludges. The majority of the wastes were stormwater basin dredgings and water/wastewater treatment sludges. The last time wastes were applied to the LTF for treatment was in November 1989. In 1995 the Permittee was allowed to place several piles of sludge generated during the closure of the storm water basin on Area I. These piles will be incorporated into the closure of the LTF.

<u>Hazardous Waste</u> <u>Unit Name</u>	Capacity	Hazardous Waste in Units
Area I Area II Area III Area IV	5.5 acres 4.2 acres 1.2 acres 2.6 acres	API Separator Sludge (K051) API Separator Sludge (K051) API Separator Sludge (K051) API Separator Sludge (K051)
Total Acres =	13.5 acres	

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SECTION II – APPROVED PERMIT APPLICATION

II.A. APPROVED PERMIT APPLICATION

This permit is based on the information in the approved permit application. The approved permit application consists of the following documents:

Document	<u>Date</u>	Date Received
RCRA Permit Application	April 23, 2007	April 23, 2007
Additional Information	July 31, 2007	August 2, 2007
Additional Information	August 10, 2007	August 10, 2007
Additional Information CITGO intends to close the LTF	June 4, 2010	June 8, 2010
Additional Information	June 9, 2010	June 14, 2010

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SECTION III - RCRA CLOSURE

A. INTRODUCTION

The RCRA Post-Closure Permit application addresses the four areas in the land treatment Facility (LTF) at the CITGO Refinery in Lemont, Illinois. As of the date of this permit, these hazardous waste land treatment units (D81) have not been certified closed. Therefore, this Post-Closure permit includes provisions to close these units prior to initiating the post-closure care period.

B. UNIT IDENTIFICATION

1. The Permittee shall perform closure of the following hazardous waste management units (HWMUs) in accordance with RCRA, the Approved Permit Application, and the conditions of this permit:

Type of Waste Unit	Unit <u>Name</u>	<u>Size</u>	Description of H Waste Contained	
Land Treatment	Area I	5.5 acres	API Separator	Sludge (K051)
Land Treatment	Area II	4.2 acres	API Separator	Sludge (K051)
Land Treatment	Area III	1.2 acres	API Separator	Sludge (K051)
Land Treatment	Area IV	2.6 acres 13.5 acres total	API Separator	Sludge (K051)

The locations of these hazardous waste management units (HWMUs) are shown on Figure 1 of this permit.

2. The permittee is prohibited from placing additional hazardous or nonhazardous waste on the land treatment units.

C. INSPECTIONS

1. The Permittee shall inspect the components, structures, and equipment at the land treatment facility in accordance with the inspection schedules identified as Tables F-1, F-2, and F-3 in the Approved Permit Application. The inspection frequencies

- for the items in the Inspection Schedules shall be those specified in Tables F-1, F-2, and F-3.
- 2. Results of all inspections and a description of any remedial actions taken shall be documented in the inspection log for the facility.
- 3. The Permittee shall continue to follow the inspection procedures in this condition until the Illinois EPA approves the closure certification for the LTF.

D. MONITORING REQUIREMENTS

- 1. The Permittee shall maintain and monitor the LTF groundwater detection monitoring system in accordance with the Approved Permit Application and the conditions in this permit during the closure period.
- 2. The Permittee shall maintain and monitor the unsaturated zone (soil) monitoring system in accordance with the Approved Permit Application and the conditions in Section IV.D of this permit during the closure period.

E. CLOSURE REQUIREMENTS

- 1. The Permittee shall close the LTF in accordance with the plans and specifications contained in the closure plan to be submitted once the Permit has been approved, and in accordance with the conditions in this permit.
- 2. The permittee shall prepare a survey plat indicating the location and dimensions of each of the land treatment areas and any other hazardous waste disposal units with respect to permanently surveyed benchmarks. This plat shall be prepared and certified by a professional land surveyor. The plat shall contain a note, prominently displayed, which states the owner's and operator's obligation to restrict disturbance of the land treatment areas in accordance with the applicable Subpart G regulations and shall state the following:
 - a. The waste materials contained in the land treatment areas are considered RCRA hazardous wastes. The wastes in the land treatment areas include API Separator Sludge (K051).
 - b. Any material removed from the land treatment areas during future activities must be managed in accordance with 35 Ill. Adm. Code Subtitle G: Waste Disposal.

The permittee shall file this survey plat with any local zoning authority, or authority with jurisdiction over local land use, and record with land titles, no later than the date the certification of closure of the land treatment areas is submitted to the Illinois EPA. The permittee shall submit the survey plat to the Illinois EPA Bureau of Land Permit Section with the certification of closure for the LTF.

- 3. As part of the closure activities, the Permittee shall:
 - a. Record a notation on the deed to the facility property, or on some other instrument which is normally examined during title search that will in perpetuity notify any potential purchaser of the property that:
 - 1. The waste material in the LTF is considered a RCRA hazardous waste;
 - 2. Use of the area is restricted; and
 - 3. A survey plat and record of the type, location and quantity of waste material in the land treatment areas has been filed with the Illinois EPA, the County Recorder, and any local zoning authority or authority with jurisdiction over local land use.
 - b. Attach the survey plat specified in this permit to the deed for the subject property, or on some other instrument which is normally examined during title search, which will in perpetuity notify any potential purchaser of the property of the requirements set forth in the notation on the survey plat.
 - c. Submit the survey plat specified in this permit to the County Recorder, any local zoning authority and any other authority over local land use.
- 4. Within sixty (60) days after closure of the LTF is complete, the Permittee shall submit certification to the Illinois EPA by registered mail that the units have been closed in accordance with the approved closure plan. The following items must be included with the closure certification:
 - a. A Class 1* permit modification requesting to modify this permit to delete those conditions that do not pertain to a post-closure permit. This submittal shall include a properly completed IEPA permit application form LPC-PA23. The PA23 Form must be signed and sealed by a qualified Professional Engineer registered in the State of Illinois and the owner/operator must check the box identifying the appropriate certification statement.

- b. The closure certification form in Attachment A to this permit. Signatures must meet the requirements of 35 Ill. Adm. Code Section 702.126. The qualified Professional Engineer registered in the State of Illinois should be present at all critical, major points (activities) during the closure. These might include soil sampling, soil removal, backfilling, final cover placement, etc. The frequency of inspections by the qualified Professional Engineer must be sufficient to determine the adequacy of each critical activity.
- c. A Closure Documentation Report which includes the following items:
 - i. A description of how the LTF was closed in accordance with the approved closure plan.
 - ii. Documentation that the requirements for the survey plat specified in Conditions E.2 and E.3 above have been met.
 - iii. Documentation that the owner/operator has recorded the notation on the deed (or other instrument) as specified in Condition E.3.
 - iv. The total volume of waste in each land treatment area. The term waste includes wastes resulting from decontamination activities.
 - v. Scaled drawings showing the horizontal and vertical boundaries of each land treatment area and the run-on / run-off control systems.
 - vi. The volume of any waste and waste residue removed, including wastes generated during decontamination procedures.
 - vii. A description of the method of waste handling and transport.
 - viii. Copies of the waste manifests.
 - ix. A description of the sampling and analytical methods used.
 - x. A chronological summary of closure activities and the cost involved.
 - xi. Tests performed, methods, and results.
 - xii. Color photographs of closure activities which document conditions before, during and after closure.

- xiii. A scale drawing of all excavated or decontaminated areas and sample locations.
- 5. Under the provisions of 29 CFR 1910 (51 FR 15,654, December 19, 1986), cleanup operations must meet the applicable requirements of OSHA's Hazardous Waste Operations and Emergency Response standard. These requirements include hazard communication, medical surveillance, health and safety programs, air monitoring, decontamination and training. General site workers engaged in activities that expose or potentially expose them to hazardous substances must receive a minimum of 40 hours of safety and health training off site plus a minimum of three days of actual field experience under the direct supervision of a trained experienced supervisor. Managers and supervisors at the cleanup site must have at least an additional eight hours of specialized training on managing hazardous waste operations.

F. FINANCIAL ASSURANCE

- 1. The permittee shall maintain financial assurance for closure of the LTF of at least \$346,567 (in 2006 dollars). The financial assurance maintained by the facility shall be sufficient to meet the requirements at 35 Ill. Adm. Code 724 Subpart H.
- 2. Financial assurance must be maintained for closure of the LTF until the Illinois EPA approves the closure certification for the units in accordance with 35 IAC 724.243.
- 3. The Permittee shall demonstrate continuous compliance with the liability insurance requirements at 35 Ill. Adm. Code 724.247 and the documentation requirements of 35 Ill. Adm. Code 724.251 until the permitted units are certified closed.
 - a. The permittee shall maintain liability coverage for sudden accidental occurrences of at least \$1 Million per occurrence with an annual aggregate of at least \$2 Million.
 - b. The permittee shall maintain liability coverage for nonsudden accidental occurrences of at least \$3 Million per occurrence with an annual aggregate of at least \$6 Million.

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SECTION IV - POST-CLOSURE CARE

A. **SUMMARY**

Hazardous waste management units where waste is left in place must receive post-closure care for at least 30 years after completion of closure. Pursuant to 35 IAC Part 724, activities required during post-closure care include, but are not limited to (1) maintenance of final cover, (2) monitoring of the groundwater, and (3) providing financial assurance for post-closure activities.

B. UNIT IDENTIFICATION

1. The Permittee shall provide post-closure care for the four areas in the hazardous waste land treatment facility (LTF) in accordance with the Approved Permit Application and the conditions of this permit:

Type of Waste Unit	Unit <u>Name</u>	Size	Description of Hazardous Waste Contained in the Unit
Land Treatment	Area I	5.5 acres	(K051) API Separator Sludge
Land Treatment	Area II	4.2 acres	(K051) API Separator Sludge
Land Treatment	Area III	1.2 acres	(K051) API Separator Sludge
Land Treatment	Area IV	2.6 acres 13.5 acres tot	(K051) API Separator Sludge al

C. MONITORING, MAINTENANCE, & RECORD KEEPING

- 1. The Permittee shall implement the approved Post-Closure Plan contained in the Approved Permit Application. All post-closure care activities must be conducted in accordance with the conditions in this permit and the provisions of the approved Post-Closure Plan.
- 2. The Permittee shall begin the post-closure care period for the hazardous waste management unit(s) listed in Section B above after completion of closure of the unit(s) as specified in Section III of this permit. The permittee shall continue the post-closure care of these units for at least thirty (30) years after that date.

- 3. The Illinois EPA may require institutional controls restricting the future use of the site if necessary to protect public health and the environment, including permanent prohibition of the use of the site for purposes which may create an unreasonable risk of injury to human health or the environment. The permittee shall file such restrictions of record in the Office of the Recorder of the county in which the hazardous waste disposal site is located. If necessary, the Illinois EPA shall file such restrictions of record after any administrative and judicial challenges to such restrictions have been exhausted.
- 4. The Permittee shall not allow any use of the units designated in Section B to be used in a manner that will disturb the integrity of the final cover, the run-on or run-off control systems, or the function of the facility's monitoring systems during the post-closure care period unless such use is necessary to protect public health or the environment.
- 5. The Illinois EPA may require, at partial and/or final closure, continuation of any of the security requirements during part or all of the post-closure period.
- 6. The Permittee must request a permit modification to authorize a change in this permit or the approved Post-Closure Plan. This request must be in accordance with applicable requirements of Parts 702, 703 and 724 and must include a copy of the amended Post-Closure Plan for approval by the Illinois EPA.
- 7. The Permittee shall maintain and monitor the LTF groundwater detection monitoring system in accordance with the Approved Permit Application and the conditions in this Permit during the post-closure period.
- 8. The Permittee shall maintain and monitor the unsaturated zone monitoring system in accordance with the Approved Permit Application and the conditions in this Permit during the post-closure period.
- 9. The Permittee shall maintain the integrity and effectiveness of the final cover, including making repairs to the vegetative cover as necessary to correct the effects of settling, subsidence, erosion, and other events.
- 10. The Permittee shall prevent run-on and run-off from eroding or otherwise damaging the final cover.
- 11. The Permittee shall maintain a record of all inspections, monitoring, and maintenance activities in the facility's operating record. A copy of the operating record must be kept on-site.

- 12. The permittee shall not grow food chain crops on the land treatment facility cover system.
- 13. The Permittee shall comply with the requirements for the land treatment facility described in the approved permit application and the conditions in this permit as follows:
 - a. Continue all operations (including pH control) necessary to enhance degradation and transformation and sustain immobilization of hazardous constituents in the treatment zone to the extent that such measures are consistent with other post-closure care activities.
 - b. Maintain a vegetative cover over closed portions of the unit.
 - c. Maintain the run-on control system.
 - d. Maintain the run-off management system.
 - e. Control wind dispersal of hazardous waste.
 - f. Continue to comply with any prohibitions or conditions concerning growth of food-chain crops.
 - g. Continue unsaturated zone monitoring.

D. UNSATURATED ZONE MONITORING

- 1. The Permittee shall monitor the soils below the treatment zone in the LTF in accordance with the Unsaturated Zone Monitoring (UZM) Plan in the Approved Permit Application and the conditions in this permit to determine if any hazardous constituents have migrated out of the treatment zone.
- 2. <u>Sample Locations</u>: The Permittee shall randomly select the locations for soil core samples in accordance with the procedure specified in Appendix I.1.6-1 of the Approved Permit Application. A minimum of eight soil samples shall be collected from the four land treatment areas as specified below:

<u>Area</u>	Size	No. of Samples
Area I	5.5 acres	3
Area II	4.2 acres	2
Area III	1.2 acres	1
Area IV	2.6 acres	2
TOTAL	13.5 acres	8

3. <u>Sample Depth</u>: The Permittee shall collect soil core samples immediately below the treatment zone in accordance with the procedures in the UZM Plan in the Approved Permit Application and the conditions in this permit.

The treatment zone at the permitted units is defined as a depth of the historically applied waste plus no more than an additional five feet below the original land surface. The elevations of the original land surface are identified in Figures 2-1 and 2-2 in the Unsaturated Zone Monitoring Plan in Appendix I.1.6-1 of the Approved permit application. The elevations of the original soil surface may be confirmed by visually inspecting the color of the soils immediately above and below the elevations identified in Figures 2-1 and 2-2.

- 4. <u>Sampling and Analysis Procedures</u>: The Permittee shall follow the sampling and analysis procedures in Appendix I.1.5 and Appendix I.1.6-1 of the Approved Permit Application and the conditions in this permit.
 - a. Analytical methods used must be in accordance with the USEPA's "Test Methods for Evaluating Solid Waste, Physical/Chemical Methods (SW-846) Third Edition, Final Update III, Revision 4," dated December 1996 or most recent version. The analytical methods must utilize reporting limits that are equal to or less than the monitoring limits for the parameters specified in the permit. The practical quantitation limits (PQLs) may be used as monitoring limits in those cases where the lab is unable to reach the monitoring limits. The laboratory report must identify all instances when a PQL was used in place of a monitoring limit specified in this permit.
 - b. The SW-846 test methods, sample holding times, containers, and preservatives specified in Table 4-3 in Appendix I.1.5 of the Approved Permit Application must be used when collecting and analyzing soil samples required by the Unsaturated Zone Monitoring program in the application and the conditions in this permit.
- 5. <u>Sampling Frequency and Schedule</u>: The Permittee shall collect soil samples annually in the fourth quarter of each calendar year.
- 6. <u>Analytical Parameters</u>: The soil samples collected shall be analyzed for the following parameters as specified below:
 - a. The soil samples collected every fifth year shall be analyzed for the parameters listed in the following table:

Metals	Volatile Compounds	Semivolatile Acid-Extractable Compounds	Semivolatile Base/ Neutral Extractable Compounds
Antimony	Acetone	Benzenethiol	Acenaphthylene
Arsenic	Benzene	Cresols (o, m, & p)	Anthracene
Barium	n-Butylbenzene	2,4-Dimethylphenol	Benzo(a)anthracene
Beryllium	sec-Butylbenzene	2,4-Dinitrophenol	Benzo(b)fluoranthene
Cadmium	Carbon disulfide	4-Nitrophenol	Benzo(k)fluoranthene
Chromium	Chlorobenzene	Phenol	Benzo(g,h,i)perylene
Cobalt	Chloroform		Benzo(a)pyrene
Lead	1,2-Dichloroethane		Bis(2-ethylhexyl)phthalate
Mercury	1,4-Dioxane		Butyl benzyl phthalate
Nickel	Ethylbenzene		Chrysene
Selenium	Ethylene dibromide		Dibenz(a,h)acridine
Vanadium	4-Isopropyltoluene		Dibenz(a,h)anthracene
	Methyl ethyl ketone		Dichlorobenzenes
	n-Propylbenzene		Diethyl phthalate
	Styrene		7,12-Dimethylbenz(a)anthracene
	Toluene		Dimethyl phthalate
	1,3,5-Trimethylbenzene		Di(n)butyl phthalate
	1,2,4-Trimethylbenzene		Di(n)octyl phthalate
	Xylene (total)		Fluoranthene
			Fluorene
			Indene
			Indeno(1,2,3-cd)pyrene
			Methyl chrysene
			1-Methyl naphthalene
			2-methylnaphthalene
			Naphthalene
			Phenanthrene
			Pyrene
			Pyridine
			Quinoline

Note: Non-Skinner List constituents are shown in italics.

b. Soil samples collected during all other years shall be analyzed for the parameters listed in the following table:

Metals	Volatiles	Semivolatiles
Antimony	Acetone	Acenaphthylene
Arsenic	Benzene	Anthracene
Barium	n-Butylbenzene	Benzo(a)anthracene
Beryllium	sec-Butylbenzene	Benzo(g,h,i)perylene
Cadmium	Ethylbenzene	Butyl benzyl phthalate
Chromium	4-Isopropyltoluene	Chrysene
Cobalt	Methyl ethyl ketone	Di(n)octyl phthalate
Lead	n-Propylbenzene	Dibenz(a,h)anthracene
Mercury	Toluene	Fluorene
Nickel	1,3,5-Trimethylbenzene	Indeno(1,2,3-cd)pyrene
Selenium	1,2,4-Trimethylbenzene	Methyl chrysene
Vanadium	Xylene (total)	1-Methylnaphthalene
		2-Methylnaphthalene
		Naphthalene
		Phenanthrene
		Pyrene

- c. If the sampling events required by Condition IV.D.6.a (every fifth year) identify compounds that are not included in Condition IV.D.6.b, those compounds shall be added to the list of compounds in Condition IV.D.6.b.
- 7. The results of each soil sampling event shall be submitted to the Illinois EPA by January 15 of each year.
- 8. The Permittee shall determine whether there is a statistically significant change over background values for any hazardous constituent to be monitored under Condition IV.D.6 each time the soil core monitoring is conducted. This determination shall be made using the statistical procedures contained in the Approved Permit Application and this condition. The Permittee shall make this determination within thirty (30) days after receipt of lab analysis results.

Concentrations greater than the Monitoring Limit for each compound specified in the following table shall be considered to be a statistically significant increase (SSI).

Chemical	Monitoring Limit	Chemical	Monitoring Limit	
Inorganics (mg/kg)		Semivolatile Organic Compounds (µg/kg)		
Antimony	6.69	Acenaphthylene	330	
Arsenic	55.6	Anthracene	660	
Barium	1028.00	Benzo(a)anthracene	660	
Beryllium	2.53	Benzo(b)fluoranthene	660	
Cadmium	9.11	Benzo(k)fluoranthene	660	
Chromium	368.00	Benzo(g,h,i)perylene	330	
Cobalt	60.10	Benzo(a)pyrene	660	
Lead	504.00	Bis(2-ethylhexyl)phthalate	660	
Mercury	0.90	Butyl benzyl phthalate	660	
Nickel	138.00	Chrysene	660	
Selenium	0.54	Dibenz(a,h)acridine	330	
Vanadium	446.00	Dibenz(a,h)anthracene	660	
Volatile Organic Co				
(μg/kg)	1	Dichlorobenzenes	660	
Acetone	20	Diethyl phthalate	660	
Benzene		7,12-Dimethyl-		
	5	benz(a)anthracene	660	
n-Butylbenzene	5	Dimethyl phthalate	660	
sec-Butylbenzene	5	Di(n)butyl phthalate	660	
Carbon disulfide	5	Di(n)octyl phthalate	660	
Chlorobenzene	5	Fluoranthene	660	
Chloroform	5	Fluorene	330	
1,2-Dichloroethane	5	Indene	330	
1,4-Dioxane	500	Indeno(1,2,3-cd)pyrene	330	
Ethylbenzene	5	Methyl chrysene (TIC only)	330	
Ethylene dibromide	10	1-Methylnaphthalene	660	
4-Isopropyltoluene	5	2-methylnaphthalene	330	
Methyl ethyl ketone	20	Naphthalene	660	
n-Propylbenzene	5	Phenanthrene	660	
Styrene	5	Pyrene	660	
Toluene	5	Pyridine	660	
1,3,5-Trimethylbenzene	5	Quinoline	330	
1,2,4-Trimethylbenzene	5	Benzenethiol	3300	
Xylene (total)	5	Cresols (o, m, & p)	660	
		2,4-Dimethylphenol	660	
		2,4-Dinitrophenol	3300	
		4-Nitrophenol	3300	
		Phenol	660	

- 9. If the Permittee determines, pursuant to Condition IV.D.8, that there is a statistically significant increase (SSI) of hazardous constituents below the treatment zone, the Permittee shall take the following actions:
 - a. Notify the Illinois EPA in writing of this finding within seven days, indicating which constituents have shown statistically significant increases, and
 - b. Within ninety (90) days of determining there is a SSI, apply for a permit modification to modify the post-closure practices at the facility to maximize the success of degradation, transformation or immobilization processes in the treatment zone; or,
 - c. Demonstrate that a source other than regulated units caused the increase or that the increase resulted from an error in sampling, analysis, or evaluation. The Permittee must do the following when making this demonstration:
 - i. Notify the Agency in writing within seven days of determining there is an SSI that the Permittee intends to make a demonstration under 724.378(h);
 - ii. Within 90 Days of determining there is an SSI, submit a report to the Agency demonstrating that a source other than regulated units caused the increase or that the increase resulted from an error in sampling, analysis, or evaluation;
 - iii. Within ninety (90) days of determining there is a SSI, submit an application for a permit modification to make any appropriate changes to the unsaturated zone monitoring program at the facility; and
 - iv. Continue to monitor in accordance with the unsaturated zone monitoring program established under this permit and the regulations.

E. <u>INSPECTIONS</u>

1. The Permittee shall inspect the vegetative cover system, security system & benchmarks, Stormwater Control System, and Groundwater Monitoring Systems at the LTF in accordance with the approved permit application. All inspections shall be recorded using the Post-Closure Period Inspection Form in Appendix I.2.2 of the Approved Permit Application. The results of all inspections shall be

- maintained in the Inspection Log which shall be located in the CITGO Lemont Refinery's Environmental Department File Room.
- 2. The permittee shall inspect the LTF quarterly <u>and</u> within 24 hours of any precipitation event that yields 4 or more inches of rain in a 24 hour period.
- 3. The permittee shall record all repairs made to the LTF that are noted during an inspection in accordance with the Repair Log located in Appendix I.2.2.6 of the Approved Permit Application. All repairs made to the LTF shall be recorded in a log which shall be located in the CITGO Lemont Refinery's Environmental Department File Room.

F. NOTICES AND CERTIFICATION

- 1. After final closure has been certified, the person or office specified in the approved Post-Closure Plan must keep the Post-Closure Care Plan during the remainder of the post-closure period.
- 2. No later than sixty (60) days after completion of the established post-closure care period for each hazardous waste disposal unit, the Permittee shall submit to the Illinois EPA, by registered mail, a certification that the post-closure care for the hazardous waste disposal unit was performed in accordance with the specifications in the approved Post-closure Plan. The certification must be signed by the owner or operator and a qualified professional engineer registered in the State of Illinois. Documentation supporting the professional engineer's certification must be furnished to the Illinois EPA upon request until the Illinois EPA releases the Permittee from the financial assurance requirements for post-closure care.

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SECTION V: GROUNDWATER DETECTION MONITORING PROGRAM

A. <u>SUMMARY</u>

Groundwater parameters monitored in the uppermost aquifer below the facility indicate that, at the present time, no groundwater impacts have occurred. Therefore, a Groundwater Detection Monitoring Program meeting the requirements of 35 Ill. Adm. Code 724.198 shall be implemented at the facility.

The CITGO Lemont Refinery has six (6) existing wells to monitor groundwater in the lower portion of the Lemont Drift aquifer that are utilized for the Groundwater Detection Monitoring Program. The average depth to groundwater in the wells is approximately 74 feet. The Groundwater Detection Monitoring Program will therefore consist of five (5) downgradient wells, one (1) upgradient well and eighteen (18) piezometers for determining groundwater surface elevation only.

B. <u>DEFINITIONS</u>

As used herein, the words or phrases set forth below shall have the following definitions:

- 1. "CITGO" shall refer to CITGO Petroleum Corporation-Lemont Refinery.
- 2. "Site" or "Facility" refers to the location at135th Street & New Avenue, Lemont, County of Will, State of Illinois.
- 3. "Permittee" refers to the Facility.
- 4. "Illinois EPA" refers to the Illinois Environmental Protection Agency.
- 5. "RCRA" shall mean the Resource Conservation and Recovery Act as defined by Section 3.425 of the Environmental Protection Act, 415 ILCS 5/1 (2006).
- 6. "Permit" refers to the RCRA Part B Permit.
- 7. "Point of Compliance" refers to the vertical surface located at the hydraulically downgradient limits of the waste management area (Land Treatment Facility (LTF)) extending down into the uppermost aquifer underlying the regulated unit.
- 8. "Ft-bgs" refers to the number of feet below the ground surface.

- 9. "Ft-MSL" refers to the number of feet below the ground surface referenced to mean sea level.
- 10. "Detected" shall mean a concentration equal to or above the PQL listed in the latest promulgated version of USEPA's "Test Methods for Evaluating Solid Waste, Physical/Chemical Methods (SW-846) for the applicable analytical methods specified in the approved Sampling and Analysis Procedures, which are incorporated by reference in Condition V.H of the Permit.
- 11. "Uppermost Aquifer" refers to the geologic formation nearest the natural ground surface that is an aquifer, as well as lower aquifers that are hydraulically connected with this aquifer in the vicinity of the facility. The uppermost aquifer in the vicinity of the CITGO facility has been identified as the Lemont Drift and consists of sandy silt, silty sand, sand and gravel layers occurring in the lower part of the Lemont Drift and the dolomite bedrock underlying the drift.
- 12. "Stick-up" refers to the height of the referenced survey datum. This point is determined within ± 0.01 foot in relation to mean sea level, which in turn is established by reference to an established National Geodetic Vertical Datum.

C. <u>IMPLEMENTATION</u>

- 1. The Permittee shall implement the Groundwater Detection Monitoring Program upon the effective date of this Permit. On that date, the groundwater monitoring requirements set forth in this Permit shall supersede those previously established.
- 2. The Permittee shall carry out the detection monitoring specified in this Permit on the groundwater beneath the CITGO Land Treatment Facility in Lemont, Illinois. The uppermost aquifer in the vicinity of the facility has been identified as the sandy silt, silty sand, sand and gravel layers occurring in the lower part of the Lemont Drift and the dolomite bedrock underlying the drift. For the purpose of this Permit and in accordance with the 35 Ill. Adm. Code Part 620 regulations, the uppermost aquifer has been designated Class I: Potable Resource Groundwater.
- 3. The Point of Compliance, defined as the vertical surface located at the hydraulically downgradient limit of the waste management area that extends down into the uppermost aquifer underlying the regulated unit, is delineated by the wells identified as the point of compliance wells in Condition V.D.1 and illustrated in Figure B-9 of the approved Permit Renewal Application.

D. WELL LOCATIONS AND CONSTRUCTION

1. The Permittee shall install and maintain groundwater monitoring wells and piezometers at the locations identified in the table below to allow for the collection of groundwater samples and elevations from the uppermost aquifer. The location of these wells and piezometers are specified in Figure B-9 of the approved Permit Renewal Application.

IEPA Weil <u>No.</u>	Facility Well <u>No.</u>	Well Depth (ft)	Boring Depth Elevation (ft MSL)	Screen Depth Interval (ft)
G01D	UA-1*	106.90	611.90	92.1 - 102.1
G02D	UA-2**	86.60	605.64	70.0 - 80.0
G03D	UA-3**	89.55	608.18	74.7 - 84.7
G04D	UA-4**	87.00	608.98	72.1 - 82.1
G05D	UA-5**	92.60	602.24	72.1 - 82.1
G06D	UA-6**	96.10	605.55	79.0 - 89.0

^{*} Denotes Upgradient Wells

Piezometers

P01D	B-1***	111.10	584.10	101.90 - 106.90
P02D	B-2	110.20	586.86	100.90 - 105.90
P03D	B-3	125.00	587.07	116.00 - 121.00
P04D	B-4	99.25	584.09	90.30 - 95.30
P05D	B-5	103.10	585.39	94.77 - 99.77
P06D	B-6	113.10	587.36	103.92 - 108.92
P07D	B-7	117.42	587.70	107.67 - 112.67
P08D	B-8	118.25	589.20	108.51 - 113.51
P09D	B-9	108.70	584.47	99.50 - 104.50
P10D	B-10	122.20	591.26	117.01 - 122.01
P11D	B-11	131.85	589.24	122.92 - 127.92
P12D	B-12	135.10	588.19	126.20 - 131.20
P13D	B-13	128.00	590,26	119.70 - 124.70
P14D	B-14	99.50	586.58	91.00 - 96.00
P15D	B-15	136.93	584.61	127.50 - 132.50
P16D	B-16	124.15	595.48	115.90 - 120.90
P17D	B-17	127.05	599.97	122.90 - 127.90
P18R	B-18R	120.25	586.23	110.00 - 120.00

^{**} Denotes Point of Compliance Wells

*** Denotes Upgradient Piezometer

- 2. Construction of any new monitoring well/piezometer must be at a minimum in accordance with the diagram contained in Attachment B to this Permit unless otherwise approved in writing by the Illinois EPA. Any new monitoring well/piezometer to be installed must be continuously sampled and logged on Illinois EPA boring logs which can be found at http://www.epa.state.il.us/land/regulatory-programs/permits-and-management/forms/index.html#groundwater-permits.
- 3. The Permittee shall notify the Illinois EPA within thirty (30) days in writing if any of the wells identified in Condition V.D.1 above are damaged or the structural integrity has been compromised. A proposal for the replacement of the subject well shall accompany this notification. The well shall not be plugged until the new well is on-line and monitoring data has been obtained and verified, unless the well is extremely damaged and would create a potential route for groundwater contamination. Prior to replacing the subject well, the Permittee shall obtain written approval from the Illinois EPA regarding the proposed installation procedures and construction.
- 4. Should any well become consistently dry or unserviceable; a replacement well shall be provided within ten (10) feet of the existing well. This well shall monitor the same zone as the existing well and be constructed in accordance with the current Illinois EPA groundwater monitoring well construction standards at the time that the well is replaced. A replacement well which is more than ten (10) feet from the existing well or does not monitor the same geologic zone must be approved by the Illinois EPA and designated as a new well.
- 5. The Permittee shall submit boring logs, construction diagrams and data sheets from installation and development of a new or replacement well to the Illinois EPA at the address below with thirty (30) days of the date that installation of the well is completed. In addition, the Permittee shall submit certification that plugging and abandonment of a well was carried out in accordance with the approved procedures to the Illinois EPA at the address below within thirty (30) days of the date that the well is plugged and abandoned. All information should be submitted to the appropriate State and/or local agencies.

Illinois Environmental Protection Agency Bureau of Land - #33 Permit Section 1021 North Grand Avenue East Post Office Box 19276 Springfield, Illinois 62794-9276

- 6. All wells/piezometers shall be equipped with protective caps and locks.

 Monitoring wells or piezometers located in high traffic areas must protected with bumper guards.
- 7. All groundwater monitoring wells and piezometers not utilized in the groundwater monitoring system, but retained by the facility, must be constructed and maintained in accordance with 77 Ill. Adm. Code 920 regulations. Monitoring wells and piezometers that are improperly constructed must be abandoned in accordance with Condition V.D.3.

E. MONITORING PARAMETERS

1. The Permittee shall determine groundwater quality at each groundwater monitoring well identified in Condition V.D.1, at both the upgradient and point of compliance locations, semi-annually during the active life of the four areas in the hazardous waste land treatment facility (D81) (including closure and post-closure care period). Samples collected during the semi-annual sampling events of each year shall be analyzed for the constituents below:

Semi-Annual Groundwater Sampling

Field Parameters	Storet	<u>Units</u>
pH	00400	Standard Units
Specific Conductance	00094	micromhos/cm
Temperature of Water Sample	00011	$(^{\circ}F)$
Turbidity	45626	NTUs
Depth to Water (below land surface)	72019	Feet
Depth to Water (below measuring point)	72109	Feet
Elevation of Groundwater Surface	71993	Ft-MSL
Elevation of Bottom of Well #	72020	Ft-MSL
Elevation of Measuring Point (top of casing)##	72110	Ft-MSL

Shall be determined during the second sampling event each year.

Shall be surveyed once every five (5) years, at the request of the Illinois EPA, or whenever the elevation changes as required by Condition V.G.2.

Indicator Parameters	Storet	<u>Units</u>
TOX	78115	μg/L
TOC	00680	μg/L
Arsenic (dissolved)	01000	μg/L
Selenium (dissolved)	01145	μg/L

NOTE: All parameters with the "(dissolved)" label to the right shall be determined using groundwater samples which have been filtered through a 0.45 micron filter and used for statistical purposes along with TOX and TOC. Should a parameter be detected in groundwater and found to be statistically above background, the subsequent monitoring event must include total (unfiltered) analysis and a comparison to the appropriate 35 Ill. Adm. Code 620, Class I, Groundwater Quality Standard must then take place.

- 2. Alternate concentration limits may be established in accordance with 35 Ill. Adm. Code 724.194(b) where the Permittee can determine a constituent will not pose a substantial hazard to human health or the environment. The alternate concentration limits proposed by the facility must be approved by the Illinois EPA.
- 3. The Permittee shall establish and maintain established background values in accordance with the procedures specified in Section E of the approved Permit Renewal Application as well as the following procedures:
 - a. Background groundwater quality for a monitoring parameter or constituent shall be based on data from four (4) consecutive sampling events of the upgradient groundwater monitoring well for two (2) years.
 - b. In developing the data base used to determine a background value for each parameter or constituent, the Permittee shall take a minimum of four replicate samples from each upgradient well during each of the four (4) semi-annual background sampling events. An equal number of replicate samples will be taken from each upgradient well to ensure equal weightings in statistics.
 - c. For those monitoring parameters or constituents not detected above the practical quantitation limit (PQL) during background gathering, the PQL shall be the established background value.

F. <u>DETECTION MONITORING PROGRAM</u>

1. The Permittee shall determine groundwater quality at each monitoring well identified in Condition V.D.1 semi-annually during the active life of the regulated unit (including the closure and post-closure care periods). The Permittee shall express the groundwater quality at each monitoring well in a form necessary for the determination of statistically significant changes (i.e. means, variances, etc.).

- 2. The Permittee shall determine the groundwater flow rate and direction in the uppermost aquifer semi-annually, and report at least annually from monitoring wells identified in Condition V.D.1.
- 3. The Permittee shall determine whether there is a statistically significant increase, (or decrease in the case of pH) over the background values established for each parameter identified in Condition V.E.1 each time groundwater quality is determined at the point of compliance. In determining whether such a change has occurred, the Permittee must compare the groundwater quality at each monitoring well identified in Condition V.D.1 to the background value derived in accordance with the statistical procedures specified in Section E of the approved Permit Renewal Application.

G. GROUNDWATER ELEVATION

- 1. The Permittee shall determine the groundwater surface elevation referenced to mean sea level (MSL) at each well each time groundwater is sampled in accordance with Condition V.J.3.
- 2. The Permittee shall determine the surveyed elevation of "stick-up" referenced to MSL when the well is installed (with as-built diagrams) and every five (5) years, or at the request of the Illinois EPA, or whenever the elevation changes in accordance with Condition V.J.5.
- 3. Elevation, as referenced to MSL, of the bottom of each monitoring well (Storet 72020), is to be reported at least annually. The mandatory measurement shall be taken during the second semi-annual sampling event each year.

H. SAMPLING AND ANALYTICAL PROCEDURES

- 1. The Permittee shall use the techniques and procedures described in Section E of the approved Permit Renewal Application, except as modified below, when obtaining and analyzing samples from the groundwater monitoring wells described in Condition V.D.1:
 - a. Samples shall be collected using the techniques described in Section E of the approved Permit Renewal Application.
 - b. Samples shall be preserved and shipped (when shipped off-site for analysis) in accordance with the procedures specified in Section E of the approved Permit Renewal Application.

- c. Samples shall be analyzed in accordance with the procedures specified in Section E of the approved Permit Renewal Application.
- d. Samples shall be tracked and controlled using the chain of custody procedures specified in Section E of the approved Permit Renewal Application.

I. STATISTICAL PROCEDURES

When evaluating the monitoring results in accordance with Condition V.F, the Permittee shall use the following procedure:

- 1. The statistical methods to be used shall be as specified in Section E of the approved Permit Renewal Application.
- 2. Analytical data shall be compared to the parameter background values established in accordance with Section E of the approved Permit Renewal Application.
- 3. For Constituents which have not been detected in the groundwater, a value of two times the practical quantitation limit (PQL) shall be used as the background concentration.

J. REPORTING AND RECORDKEEPING

- 1. The Permittee shall enter all monitoring, testing, and analytical data obtained in accordance with Condition V.E, V.F, V.G, V.H and V.I in the operating record. The data must include all computations, calculated means, variances, t-statistic values and t-statistic results or results of statistical test that the Illinois EPA has determined to be equivalent.
- 2. Samples collected to meet the requirements of the groundwater monitoring program described in Conditions V.E, V.F, V.G, and V.I shall be collected and reported, as identified in the table below. All additional information required by the groundwater monitoring program (as specified in Conditions V.E, V.F, V.G and V.I) shall also be submitted to the Illinois EPA at the address listed in Condition V.D.5 in accordance with this schedule.

Samples to be
Collected During
The Months of

April - June
October - December

Results Submitted
to the Illinois EPA
by the Following
Parameters

Condition V.E.1
Condition V.E.1

- 3. Groundwater surface elevation data, measured pursuant to Condition V.G.1 shall be collected semi-annually and submitted to the Illinois EPA according to the schedule in Condition V.J.2.
- 4. The Permittee shall report the groundwater flow rate and direction in the uppermost aquifer as required by Condition V.F.2 during the second semi-annual sampling event of the year.
- 5. The Permittee shall report the surveyed elevation, as required by Condition V.G.2, of the top of the well casing "stick-up", referenced to MSL in accordance with the following schedule:
 - a. For wells identified in Condition V.D.1, every five (5) years (during the second semi-annual sampling event), or at the request of the Illinois EPA, or whenever the elevation changes.
 - b. For any new wells, at the time of installation and reported in the as-built diagrams, subsequent measurements shall be made every five (5) years (during the second semi-annual sampling event), or at the request of the Illinois EPA, or whenever the elevation changes.
- 6. Elevation of the bottom of each monitoring well identified in Condition V.D.1, as referenced to MSL, is to be reported at least annually. This measurement shall be taken during the second semi-annual sampling event (Storet 72020) each year in accordance with Condition V.G.3.
- 7. Information required by Conditions V.J.2, V.J.3, V.J.5 and V.J.6 must be submitted in an electronic format. The information is to be submitted, as fixed-width text files formatted as found in Attachment B, in accordance with the schedule found in Condition V.J.2 above. Additional guidance regarding the submittal of the information in an electronic format can be found at http://www.epa.state.il.us/land/regulatory-programs/electronic-intro.html.
- 8. The Permittee shall submit a completed "RCRA Facility Groundwater, Leachate and Gas Reporting Form" (LPC-592) as a cover sheet for any notices or reports required by the Permit for identification purposes. Only one copy of the LPC-592

must accompany your submittal. However, the Permittee must submit one (1) original and (excluding the groundwater and leachate monitoring results submitted in an electronic format) a minimum of two (2) copies of each notice or report you submit to the Illinois EPA. The form is not to be used for Permit modification requests.

- 9. The Permittee shall report all information to the Illinois EPA in a form which can be easily reviewed. All submittals must contain tables of data drawings and text (as necessary) to accurately describe the information contained in the submittal.
- 10. If the Permittee determines, pursuant to Condition V.F.3 that there is a statistically significant increase for any of the parameters specified in Condition V.E.1 at any monitoring well at the point of compliance, the Permittee shall:
 - a. Notify the Illinois EPA in writing indicating what parameters and wells have shown statistically significant increases and provide all statistical calculations. This notification shall be submitted to the Illinois EPA within seven (7) days of the date that the increases are discovered.
 - b. Sample the groundwater in all wells listed in Condition V.D.1 and determine the concentration of all constituents identified in Appendix I of 35 Ill. Adm. Code 724 such that the results will accompany the permit modification required by Condition V.J.10.d below.
 - c. For any Appendix I compounds found in the analysis pursuant to this condition, the Permittee may resample within one month and repeat the analysis for those compounds detected. If results of the second analysis confirm the initial results, then these constituents will form the basis for compliance monitoring. If the Permittee does not resample for the compounds pursuant to this condition, the hazardous constituents found during the initial Appendix I analysis will form the basis for compliance monitoring.
 - d. Submit to the Illinois EPA an application for a permit modification to establish a compliance monitoring program meeting the requirements of 35 Ill. Adm. Code 724.199. The application shall be submitted to the Illinois EPA within ninety (90) days of the date that the increase is discovered. Furthermore, the application must include the following information:
 - i. An identification of the concentration of any 35 Ill. Adm. Code 724, Appendix I constituents found in the groundwater at each monitoring well at the point of compliance;

- ii. Any proposed changes to the groundwater monitoring system at the facility necessary to meet the requirements 35 Ill. Adm. Code 724.199;
- iii. Any proposed changes to the monitoring frequency, sampling and analysis procedures, or methods or statistical procedures used at the facility necessary to meet the requirements of 35 Ill. Adm. Code 724.199; and
- iv. For each hazardous constituent found at the compliance point, a proposed concentration limit under 35 Ill. Adm. Code 724.194(a)(1) or 724.194(a)(2), or a notice of intent to seek an alternate concentration limit for a hazardous constituent under 35 Ill. Adm. Code 724.194(b).
- e. Submit to the Illinois EPA a corrective action feasibility plan to meet the requirements of 35 Ill. Adm. Code 724.200 unless the concentrations of all hazardous constituents identified under Condition V.J.10.b above are listed in 35 Ill. Adm. Code 620.410 and their concentrations do not exceed the respective Groundwater Quality Standards or the Permittee has sought an alternate concentration limits under Condition V.J.10.d.iv above for every hazardous constituent identified under Condition V.J.10.b above. This plan must be submitted to the Illinois EPA within 180 days of the date the increase is discovered.
- f. Submit to the Illinois EPA all data necessary to justify any alternate concentration limit for a hazardous constituent sought under Condition V.J.10.d.iv above. This plan must be submitted to the Illinois EPA within 180 days of the date the increases is discovered.
- 11. If the Permittee determines, pursuant to Condition V.F.3, that there is a statistically significant increase above the background values for the parameters specified in Condition V.E.1, the Permittee may demonstrate that a source other than a regulated unit caused the increase or that the increase resulted from error in sampling, analysis, or evaluation. The Permittee shall submit a permit modification application in accordance with Condition V.J.10.d unless the demonstration successfully shows that a source other than the regulated unit caused the increase or that the increase resulted from errors in sampling, analysis or evaluation and the Illinois EPA concurs.

To make this demonstration, the Permittee shall:

- a. Notify the Illinois EPA in writing that they intend to make this demonstration. This notification must be submitted to the Illinois EPA within seven (7) days of the date that the increase is discovered.
- b. Submit a report to the Illinois EPA which demonstrates that a source other than a regulated unit caused the increase, or that the increase resulted from error in sampling, analysis, or evaluation. This report must be submitted within ninety (90) days of the date that the increase is discovered.
- c. Submit to the Illinois EPA an application to make any appropriate changes to the Groundwater Detection Monitoring Program. This application must be submitted within ninety (90) days of the date that the increase is discovered.
- d. Continue to monitor in accordance with the detection monitoring program at the facility.

K. REQUEST FOR PERMIT MODIFICATION

- 1. If the Permittee determines that the Groundwater Detection Monitoring Program no longer satisfies the requirements of 35 Ill. Adm. Code 724.198, the Permittee must, within ninety (90) days, submit an application for a permit modification to the Illinois EPA to make any appropriate changes to the program which will satisfy the regulations.
- 2. Conditions in this section of the Permit may be modified in accordance with 35 Ill. Adm. Code 705.128 if there is cause for such modification, as defined in 35 Ill. Adm. Code 702.184. Causes for modification identified in this section include, but are not limited to, alterations to the permitted facility, additional information which would have justified the application of different permit conditions at the time of issuance, and new regulations.

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A. INTRODUCTION

- 1. In accordance with Section 3004 of RCRA and 35 IAC 724.201, CITGO shall institute such corrective action as necessary to protect human health and the environment from all releases of hazardous wastes or hazardous constituents listed in Appendix H of 35 IAC Part 721 from any solid waste management unit (SWMU) at its Refinery in Lemont, Illinois. For the purpose of this permit, the constituents of concern being addressed under this section are the Modified Skinner List of constituents provided in the approved permit Renewal Application. Corrective action at this facility must be conducted by:
 - a. conducting a RCRA Facility Investigation (RFI) to determine whether releases of hazardous wastes and hazardous constituents have occurred from any solid waste management unit (SWMU) at its facility, and if so, the nature and extent of the release(s); and
 - b. based upon the results of the RFI, developing and implementing a Corrective Measures Program which describes the necessary corrective actions which will be taken. The required corrective actions shall be those actions necessary to protect human health and the environment from all releases of hazardous wastes or hazardous constituents listed in the afore mentioned Modified Skinner List of constituents for the facility, above site-specific cleanup objectives from any of the SWMUs.
- 2. This facility's original RCRA permit was issued by Illinois EPA on September 18, 1997 (Effective Date: October 23, 1997). Section IV of the permit contained corrective action requirements for the solid waste management units (SWMUs) listed in Section VI.B below at the facility.
- 3. The facility has completed a substantial amount of investigation and, as necessary, remediation at select SWMUs. This permit summarizes the corrective action activities completed to date and identifies the efforts which must still be carried out to complete corrective action for the SWMUs of concern at the facility.
- 4. Unless there is a desire to modify specific requirements set forth in this Section, information submitted to Illinois EPA regarding the corrective action

- requirements set forth in this Section is not a request to modify this permit nor subject to the requirements of 35 Ill. Adm. Code 703, Subpart G.
- 5. The Permittee must provide corrective action, as appropriate, for any future releases from SWMUs present at the facility.
- 6. The requirements of 35 Ill. Adm. Code 742 must be met, as appropriate, in determining remediation objectives for corrective action activities. In addition, the requirements of 35 Ill. Adm. Code 620 and 724 must be met during implementation of the RCRA corrective action program at this facility.
- 7. Illinois EPA's final actions on all corrective action-related submittals made by the Permittee are subject to the appeal provisions of Section 39 and 40 of the Illinois Environmental Protection Act.
- 8. The Permittee must conduct and complete Inspection and Maintenance Program for the storm water sewer system, and the process wastewater sewer system in accordance with the approved plans.

B. <u>CONDUCTING THE RCRA FACILITY INVESTIGATION</u>

The Permittee must conduct a RCRA Facility Investigation (RFI) to determine the nature and extent of releases of hazardous wastes and hazardous constituents from various SWMUs at the subject facility. In general, this investigation has been or is being done on a SWMU by SWMU basis. To date, CITGO has conducted a substantial amount of investigation at the SWMUs of concern at this facility.

The RFI for each SWMU is carried out in two phases. Each phase will provide for a more detailed evaluation of each SWMU identified. Phase I will define whether a release from the SWMU has occurred to the environmental media of concern. Phase II will define the nature and extent of any release from the SWMU to soil, groundwater, and surface water/sediments. A more detailed discussion of the goals of each phase of the RFI is presented in Section II of Attachment C-1. The guidance for conducting a RFI is provided as Attachment C-1 to the Permit.

- 1. CITGO has conducted a substantial amount of investigative and remedial effort to date. A summary of these activities, based on Illinois EPA's letters approving plans/reports associated with these efforts is contained in Attachment C-2 of this Permit.
- 2. Based upon the results of the RCRA Facility Assessment which was conducted by the Illinois EPA for this facility, the SWMUs identified in the following table

must be evaluated in the RFI for potential releases to certain environmental media of concern also identified in the table. The SWMUs initially identified were grouped into two categories (Group I and Group II) based on their estimated potential risk to human health and the environment. The Group I SWMUs have either had known releases in the past or pose the highest potential for releases that could impact the environment. Group II SWMUs are not known to have had a release and have a low potential for impact. In addition, all new SWMUs discovered during the course of carrying out this corrective action program are added to Group II (please note that this is <u>not</u> a complete listing of SWMUs at the subject facility).

In addition to identifying the SWMUs which must be evaluated in an RFI, the table below identifies the current status of corrective efforts at each SWMU (see the "CA Status" column in the table). Furthermore, the table identifies those SWMUs where groundwater must be addressed as part of the corrective action program (see "Need to Address GW" column). Note that following abbreviations are used in the table below:

CM = Corrective Measures

CMP = Corrective Measures Plan

ELUC = Environmental Land Use Control

CWPP = Construction Worker Precaution Plan

NFA = No Further Action

TBD = To Be Determined

I/C= Industrial/Commercial

Group I

SWMU	Name	CA Status	Need to Address GW?
2 A-E	Former Process Wastewater Line (Big Inch)	NFA for soil only issued on 1/31/06. A supplemental investigation report received on 11/23/09 and under IEPA review (CA-134).	Yes
3	Former North Plant API Separator and Above Ground Corrugated Plate Separator	NFA for soil only issued on 8/24/05.	Yes
4	Hot Oil Line, Seneca Petroleum Storage Tank	NFA issued on 4/12/07.	No

SWMU	Name	CA Status	Need to Address GW?
7	Interceptor Trench; Canal Dock	RFI Phase II Workplan approved on 4/25/08. IEPA verbally approved supplemental workplan on 7/8/10. CMP received on 10/25/10.	TBD
11A	Recycle Tank; 11A - Mobil Interface Tank 436	Phase II RFI Report received on 4/17/09 and under IEPA review (CA-123).	TBD
11B	Recycle Tank; 301 Tank	Phase II RFI Report received on 4/17/09 and under IEPA review (CA-124).	TBD
12	Tank 201 and Proximate Area	NFA on soil only issued on 10/4/10 (CA-126 & 128); ELUC required for I/C use.	Yes
17	Intermittent Stream/Stormwater Conveyance	NFA issued on12/17/07; area access control required.	No
19D	Former Sludge Drying Areas	Phase II RFI/CM report approved and NFA for soil only issued on 12/18/08; ELUC required for I/C use.	Yes (as part of GMZ)
21	Vertical Oil Storage Tanks at the Stormwater Basin (SWB)	Phase I Report approved and NFA issued on 4/12/07; ELUC required for I/C use.	No
24	Former API Separator	Determination of further CA work be completed as a part of the facility's GMZ made on 8/24/05.	Yes (as part of GMZ)
30	Former Primary Light Oil (PLO) Underground Soil/Groundwater	Phase II RFI Workplan approved on 4/25/08. CMP received on 8/4/09 and under IEPA review (CA-125).	TBD

			Need to
<u>SWMU</u>	<u>Name</u>	<u>CA Status</u>	Address GW?
31A	Former Underground Storage Tanks located at Active Solvent Loading Rack Area	NFA for Soil only issued on 12/17/07; ELUC required for I/C use, engineered barrier and CWPP. Draft ELUC was received on 5/23/08 and under IEPA review (CA-98).	Yes
31B-E	Former Underground Storage Tanks located at Former Service Station	NFA for soil only issued on 8/24/05. Draft ELUC was received on 5/28/08 and under IEPA review (CA-99).	Yes
32	Former Process Blending UST at the Process Blend Center	NFA for soil only issued on 7/17/06.	Yes
33	Groundwater Monitoring Zone (GMZ) around beneath the storm water basins	GMZ Re-evaluation approved on 5/17/07. Continued GMZ operation is required.	Yes (as GMZ)
34	French Drain System	NFA on Soil only issued on 6/16/09; ELUC required for I/C and CWPP. A revised CMP received to request a modification to the ELUC requirement on 4/8/10 and under IEPA review (CA-138).	Yes
36	Former USTs Located at South Plant Maintenance Area	Phase I RFI report approved and NFA issued on 7/17/06.	No
37	Former USTs Located near WWTP Outfall to Chicago Sanitary & Ship Canal	Phase I RFI report approved and NFA issued on 7/17/06.	No

Group II

SWMU	Name	CA Status	Need to Address GW?
1	Former Empty Drum Storage Area	NFA issued on 6/1/04.	No

CIVINATI	7.7	GA G.	Need to
SWMU 5	Name Former Dump Area for Lime Sludge Seneca Tank Location	CA Status NFA issued on 11/4/10. ELUC required for I/C.	Address GW? No
10	North Plant Heat Exchanger Bundle Cleaning Pad	Phase II RFI workplan has been approved.	
13	Sludge Drying Area	Phase II RFI workplan has been approved.	TBD
15A-B	Wastewater Treatment Sludge Decant Basin within Land Treatment Facility	Phase II RFI workplan has been approved.	TBD
16	Sludge Application Area	NFA issued on 11/27/06.	No
18	Waste Staging Area	Phase II RFI workplan has been approved.	TBD
19A	Former Sludge Drying Area	Phase II RFI workplan has been approved.	TBD
19B	Former Sludge Drying Area	CM completion report received on 11/13/09 and under IEPA review (CA-130).	TBD
19C	Former Sludge Drying Area	Phase II RFI workplan has been approved.	TBD
20	Active Drum Staging Area	Phase II RFI workplan has been approved.	TBD
25A	Heat Exchanger Bundle Cleaning Pad	NFA issued on 6/16/09; closure activities upon closure of the unit. ELUC required for I/C use.	TBD upon Closure
25B	Heat Exchanger Bundle Cleaning Pad	Phase II RFI workplan has been approved.	TBD upon Closure

SWMU	Name	CA Status	Need to Address GW?
25C	Supplementary Heat Exchanger Bundle Cleaning Pad Cleaning Building	NFA issued on 11/4/10. ELUC required for I/C.	No
35	Red Dye Spill Area	NFA issued on 11/4/10. ELUC required for I/C.	No
43A	Suspected Spill Location Along the Product Pipe Line: Canal Dock Piping	Phase I RFI report received on 4/17/09 and under IEPA review (CA-122).	TBD
43B	Suspected Spill Location Along the Product Pipe Line: Primary Light Oil Pump	Phase I RFI report received on 4/17/09 and under IEPA review (CA-122).	TBD
43C	Suspected Spill Location Along the Product Pipe Line: Refinery Flare	Phase I RFI report received on 4/17/09 and under IEPA review (CA-122).	TBD
43D	Suspected Spill Location Along the Product Pipe Line: Barge	Phase I RFI report received on 4/17/09 (CA-122).	TBD
43E	Suspected Spill Location Along the Product Pipe Line: Above Ground Tank	Phase I RFI report received on 4/17/09 (CA-122).	TBD
43F	Suspected Spill Location Along the Product Pipe Line: Lift Station Pump	Phase I RFI report received on 4/17/09 and under IEPA review (CA-122).	TBD
43G	Suspected Spill Location Along the Product Pipe Line: Process Drain System	Phase I RFI report received on 4/17/09 and under IEPA review (CA-122).	TBD
43H	Suspected Spill Location Along the Product Pipe Line: Pipeline Primary Light Oil	Phase I RFI report received on 4/17/09 (and under IEPA review CA-122).	TBD

SWMU	Name_	CA Status	Need to Address GW?
431	Suspected Spill Location Along the Product Pipe Line: Condenser (Sulfur Dioxide)	Phase I RFI report received on 4/17/09 and under IEPA review (CA-122).	TBD
43J	Pipeline Release Near Tanks 92 and 108	ELUC required for I/C, engineered barrier (installed), and CCWPP.	Yes
44	Spill at the Gasoline Transfer Line	Phase II RFI workplan has been approved.	TBD
45	Contaminated Fill Area near Canal Dock	Newly discovered SWMU. SWMU Assessment Report was received on 8/31/10.	TBD

- 3. The Groundwater Management Zone (GMZ) Monitoring Program and Site-Wide Groundwater Monitoring Program are currently being conducted as part of the Corrective Action Program.
 - a. The GMZ was originally approved by the Illinois EPA on April 11, 1994 and was identified as SWMU 33 in the RCRA Permit. The current GMZ program implemented at a portion of the south plant includes: 14 monitoring wells, 15 bedrock piezometers, two staff gauges located in the Illinois and Michigan (I&M) Canal, and the Green Coke Storage Area (GCSA) sump (which controls the groundwater by inward gradient control pumping). The GMZ monitoring requirements currently include:
 - (1) Semi-annual groundwater and surface water elevation measurements;
 - (2) Semi-annual groundwater sampling and analysis for VOCs;
 - (3) No sampling of monitoring wells in which there is a presence or evidence of LNAPL; and
 - (4) Semi-annual and annual monitoring reports submitted to Illinois EPA.

Note that any changes to the above monitoring requirements are subject to Illinois EPA's approval under the Corrective Action Program.

- b. The Site-Wide Groundwater Monitoring Program consists of a network of wells used to determine the quality of groundwater as it relates to multiple SWMUs. CITGO has proposed to address the groundwater exposure route at SWMUs that are required to address groundwater contamination during Phase I/II RFI at each SWMU through proposed Site-Wide Groundwater Monitoring Program.
- c. CITGO's "Site-Wide Groundwater Monitoring and Investigation Workplan" submitted to Illinois EPA on January 31, 2007 was approved with conditions and modifications on May 31, 2007.
- d. CITGO's Current Conditions Report and Proposed Workplan for Future Groundwater Management was submitted to Illinois EPA on September 15, 2008. This workplan was approved with conditions and modifications on April 26, 2010 (Log No. B-162-CA-102). This letter approved the sitewide groundwater management approach.
- e. It is appropriate to address groundwater contamination at the identified SWMUs required to address groundwater, through the proposed site-wide groundwater management approach. However, should the facility choose to obtain an NFA for groundwater on SWMU by SWMU basis, the facility will be required to address groundwater contamination at each identified SWMU and the Illinois EPA will make the NFA determinations on a SWMU by SWMU basis.
- 4. CITGO has been conducting inspection and maintenance work at Process Sewers (SWMU No. 38), Storm Sewers (SWMU No. 39), and Open Flow Ditches (SWMU No. 40) in accordance with a workplan approved by Illinois EPA on February 21, 2003 as required in Section VI.D of this permit. As a result of the on-going investigation, some of the segments/structures of the investigated Process and Storm Sewers were determined to require further corrective action investigation. The table below identifies those locations which, to date, require a more formal investigation and have thus determined to be SWMUs. Note that this is not the complete list of the defects which require further investigation. The facility must update the list of Storm and Process Sewer related SWMUs in its annual sewer report required in Section VI.D below.

SWMUs Identified from RCRA Sewer Investigation

SWMU 38 - Process Sewer

38a	Process Sewer Line Segment:	NFA was issued on 7/8/10; ELUC
	31-MH8-DP-01 to 31-MH8-DP-02	required for I/C and GW restriction.

38b	Process Sewer Line Segment: 31-MH5-DP-03 to 31-MH5-DP-01	NFA on soil only issued on 10/4/10 (CA-126 & 128); ELUC required for I/C use.
38c	Process Sewer Structure: 31-MH5-DP-01	NFA on soil only issued on 10/4/10 (CA-126 & 128); ELUC required for I/C use. Groundwater must be investigated.
38d	Coker Road Process Sewer- (7) Line Segments: 52-LS51-DP-01 to 52-MH34-DP-01	Phase I RFI/Closure report received on 6/7/10 and under IEPA review (CA-141).

SWMU 39 - Storm Sewer

39a	Storm Sewer – Line Segment: 130-MH79-DRC-01 to 130-MH75-DRC- 02	Phase II RFI Report received on 11/30/09 and under IEPA review (CA-131).
39b	Storm Sewer – Line Segment: 130-MH75-DRC-05 to 130-MH75-DRC- 32; Structure: 130-MH75-DRC-05	Phase II RFI Report received on 11/30/09 and under IEPA review (CA-132).

- 5. CITGO will be required to establish environmental land use controls (ELUC) for most of the SWMUs listed in Condition VI.B.2 above. All ELUC required must be developed and recorded in accordance with 35 Ill. Ad, Code 742 Subpart J and the Illinois EPA approval letters regarding RCRA corrective action.
- 6. The RFI has been initiated at all SWMUs; status of the RFI to date for each SWMU is described in the table provided in Conditions VI.B.2 and 4 above.
 - In general, following the submittal of the RFI Phase I/II report, the Illinois EPA's BOL will review the submitted data. The Illinois EPA's BOL will offer CITGO the opportunity to meet with Illinois EPA staff to discuss the results of the review prior to finalization of the review comments. The Illinois EPA's BOL will then notify CITGO in writing of the results of the review. This notification will discuss the status of each of the SWMUs evaluated as part of the Phase I/II RFI.
 - a. If the Illinois EPA's BOL determines, based upon the data provided within and obtained from the Phase I/II Workplan for each SWMU investigated, that (1) there is no potential for release from that SWMU to the environmental media of concern and (2) there has been no release of

hazardous wastes or hazardous constituents to the environmental media of concern from that SWMU, then no further action will be required for that SWMU.

- b. If the Illinois EPA's BOL determines, based on data from the Phase I/II RFI for each SWMU investigated, that (1) there has been a release to any environmental media of concern, or (2) there currently is a release to any environmental media of concern, then the nature and extent of the release must be defined. If the Group 1 Phase I/II RFI did not adequately define nature and extent to the satisfaction of the Illinois EPA, then a Phase II (or supplemental Phase II) investigation will be required as discussed in 6.c below.
- c. If the results of the Phase I/II RFI are inconclusive or incomplete, a Phase II (or Supplemental Phase II) investigation must be conducted by CITGO. This investigation shall be conducted to collect additional information so that a conclusive determination can be made regarding a current/past release from a SWMU. This investigation shall be carried out in accordance with the RFI guidance provided above.
- d. The final letter sent to the facility conveying the results of the review will:
 - 1. Identify those SWMUs for which no further investigation is needed;
 - 2. Identify those SWMUs for which no further action is required;
 - 3. Identify those SWMUs that must be further investigated as part of a Phase II or a Supplemental Investigation to determine the rate and extent of migration of hazardous waste or hazardous constituents and the concentrations of the hazardous waste or hazardous constituents in the environmental media potentially impacted by a release from the SWMU;
 - 4. Identify, for each SWMU requiring further investigation, the associated environmental media which must be further investigated;
 - 5. Identify those SWMUs and associated environmental media for which corrective measures are required.



- Illinois EPA action on the final Phase I/II RFI report and proposed Release e. Criteria will be subject to the appeal provisions of Sections 39(a) and 40(a) of the Illinois Environmental Protection Act.
- 7. If CITGO is notified in writing in accordance with Condition B.6 that any SWMUs identified during the Phase I/II or Supplemental Phase II RFI as needing further investigation, then CITGO must develop and submit a Phase II RFI Workplan. Phase II of the RFI shall focus on determining the rate and extent of migration of hazardous waste or hazardous constituents and the concentrations of the hazardous waste or hazardous constituents in any affected media (soil, groundwater, or surface water). Such a workplan must be submitted no more than 90 days after the facility is notified in writing in accordance with Condition B.6 above. The Scope of Work for Phase II or Supplemental Phase II of the RFI is contained in Attachment C-1 to the Permit.
- The Illinois EPA's BOL will approve, approve with modifications, or disapprove 8. the RFI Phase II or Supplemental Phase II workplan in writing and provide comments regarding the required corrections or modifications.
 - Within 60 days of the receipt of such comments, CITGO must modify the a. plan or submit a new plan for the Illinois EPA's BOL approval.
 - Within 60 days of, or by a due date specified by, the Illinois EPA's b. approval of the workplan, CITGO shall begin implementing the plan according to the terms and schedule established in the workplan.
 - Illinois EPA action on the workplan will be subject to the appeal c. provisions of Sections 39(a) and 40(a) of the Illinois Environmental Protection Act.
- 9. CITGO must submit a report documenting the efforts carried out in accordance with the approved RFI Phase II or Supplemental Phase II Workplan and the schedule established within the workplan. This report must be prepared in a manner which summarizes the overall Phase II RFI efforts and specific information required to be obtained in the Phase II RFI Workplan as described in Attachment C-1. F.
- Following submittal of the RFI Phase II or Supplemental Phase II report, the 10. Illinois EPA's BOL will review the data and notify CITGO in writing of the results.
 - If the Illinois EPA determines that the nature and extent of hazardous a. waste or hazardous constituents from a SWMU release, above the Release

Criteria, has not been adequately defined during the Phase II investigation, then CITGO must conduct a supplemental investigation.

- b. If the Illinois EPA's BOL determines that further investigation is not required, based on data obtained from the RFIs, the Illinois EPA reserves the right to require that corrective measures be conducted for the SWMUs of concern to address releases identified through the Phase I, Phase II, and supplemental investigations.
- c. If the Illinois EPA determines that (1) there has not been a release of hazardous waste or hazardous constituents from a SWMU to the groundwater (2) but there is a potential for future releases of hazardous waste or hazardous constituents from a SWMU to the groundwater, then the Illinois EPA may require a longer term groundwater monitoring program at any SWMU where substantial soil contamination exists (as determined by the Illinois EPA), or at any SWMU which would meet the definition of a land disposal unit. This need for additional monitoring is dependent on the corrective action taken in response to the waste and/or contaminated soil present at the SWMU.
- d. The Illinois EPA's response to the Phase II or Supplemental Phase II report will:
 - i. Identify those SWMUs investigated as part of the Phase II RFI for which no further action is required.
 - ii. Identify those SWMUs investigated as part of the Phase II RFI for which no further investigation is needed.
 - iii. Identify those SWMUs investigated as part of the Phase II RFI for which supplemental investigations must be conducted.
 - iv. Identify, for each SWMU requiring further investigation, the associated environmental media which must be investigated further and the information to be obtained during the investigation.
 - v. Identify those SWMUs and associated environmental media for which corrective measures are required.
 - vi. Identify those SWMUs for which longer-term monitoring is required.

e. Illinois EPA action on the final RFI Phase II or Supplemental Phase II report will be subject to the appeal provisions of Sections 39(a) and 40(a) of the Illinois Environmental Protection Act.

C. CORRECTIVE MEASURES REQUIREMENTS

If it has been determined from the Phase I/II RFI that corrective measures must be taken in response to releases from any SWMU that have not been addressed by approved interim measures, then CITGO shall implement a Corrective Measures Program (CMP). The CMP is divided into five phases:

- 1. Phase I should consist of (1) development of final cleanup objectives, (2) discussion of those SWMUs requiring corrective measures and (3) a preliminary evaluation of the corrective action alternatives available for each SWMU requiring corrective action.
- 2. Phase II should consist of (1) detailed evaluation of the corrective measure alternatives for each SWMU and (2) development of a conceptual design of the corrective action chosen for each SWMU including remedial system(s) and/or institutional controls.
- 3. Phase III should consist of development and submission of the final design plans for the corrective action and should include the preparation of the operation and maintenance plans.
- 4. Phase IV is the actual construction/installation of the selected corrective measure.
- 5. Phase V is operation, maintenance, and monitoring of the selected corrective action to ensure it is properly protecting human health and the environment.

Attachment D provides an overview of each Phase of the CMP. The Illinois EPA's decision to approve or disapprove of any element of the CMP described in Attachment D shall be subject to the appeal provisions of Sections 39(a) and 40(a) of the Illinois Environmental Protection Act.

The Phase I CMP report must be submitted within 120 days after receipt of the notification from the Illinois EPA that corrective measures are necessary to protect human health and the environment from observed releases from SWMUs at the facility. The purpose of the CMP is to describe the procedures which will be followed in providing corrective action at each SWMU requiring corrective measures. The proposed corrective measures must be sufficient to protect human health and the environment from the observed release. Subsequent submittals associated with the corrective measures

process must be submitted to the Illinois EPA in accordance with the schedule in the Phase I CMP Report.

D. <u>SEWER INSPECTION AND MAINTENANCE PLAN</u>

- 1. CITGO's workplan providing an inspection and Maintenance Plan for the following SWMUs: (1) Process Sewer System (SWMU No. 38); (2) Storm Sewer System (SWMU No. 39); and (3) Open Flow Ditches (SWMU No. 40). This workplan for a multi-year phased investigation of the sewer systems was approved by Illinois EPA on February 21, 2003 (Log No. B-162-CA-41).
- 2. The RCRA Sewer Inspection and Maintenance activities commenced in 2004 (Year 1). CITGO has developed a 10-year plan for the sewer inspection program, which included the division of the facility into seven (7) areas: Area 1, Area 2, Area 3, Area 4A, Area 4B, Area 5, and Area 6. Inspection and Maintenance of sewer segments in each Area is conducted in accordance with the approved plan. All defects discovered during the sewer inspection are rated in accordance with Illinois EPA approved workplans.
- 3. A report summarizing the results of the approved inspection and maintenance plan must be developed for each calendar year. The report shall be developed in accordance with the procedures set forth in the approved plan and be submitted to Illinois EPA by March 31 of each following year.
- 4. Any defect discovered during the RCRA sewer inspection and maintenance program must be evaluated to be rated for structural and environmental defects in accordance with the procedures approved by Illinois EPA for potential release to the surrounding environment. If a defect is determined to required additional investigation, a workplan shall be developed and submitted for further corrective action investigation and remediation as necessary. Each of these defects will be assigned a SWMU ID and any further corrective action will be conducted in accordance with the procedures set forth in Sections VI.B and VI.C of this Permit.
- 5. CITGO completed the inspection and maintenance activities for Open Flow Ditches (SWMU No. 40) in 2005, which consisted of approximately 26,000 linear feet of open ditches at the facility. The 2005 RCRA Sewer Investigation Report documenting the inspection of SWMU 40 was approved on 6/8/06.

E. FINANCIAL ASSURANCE FOR CORRECTIVE ACTION

1. CITGO shall prepare a cost estimate for the completion of any corrective measure(s) required under this Permit, in order to provide financial assurance for completion of corrective action, as required under 35 IAC 724.201(b). Such a cost estimate will be based upon the cost of contamination investigations and assessments for the SWMU(s), and design, construction, operation, inspection, monitoring, and maintenance of the corrective measure(s) to meet the requirements of this Permit. This cost estimate must be submitted to the Illinois EPA's BOL and revised according to the following schedule:

Facility Submission	Due Date
Updated Corrective Action Cost Estimate	Within 120 days after the effective date of this Permit (as a Class I* modification request)
Revised Cost Estimate (with the initial submittal of each RFI Report and/or CMP report)	Upon written Illinois EPA request

- 2. As indicated in Condition VI.E.1 above, an estimate of the cost of completing corrective action at this facility must be submitted to Illinois EPA within 120 days of the date of the effective date of this permit. This submittal must be developed on a SWMU by SWMU basis and include all unit costs and resource-needs used to develop the estimates.
- 3. CITGO shall demonstrate continuous compliance with 35 IAC 724.201 by providing documentation of financial assurance using a mechanism specified in 35 IAC 724.243, in at least the amount of the cost estimate required under Condition E.1 the words "completion of corrective action" shall be substituted for "closure and/or post-closure," as appropriate in the financial instrument specified in 35 IAC 724.251. The documentation shall be submitted to the Illinois EPA's BOL within 60 days after the submittal of the initial or revised cost estimates required under Condition E.1. The Illinois EPA's BOL may accept financial assurance for completion of corrective action in combination with another financial mechanism acceptable under 35 IAC 724.246 at its discretion.

F. FUTURE RELEASES FROM SWMUS

Whenever the Permittee becomes aware that any SWMU identified in Condition B.2, that was not found to be releasing hazardous waste or constituents during the RFI, or was not addressed under the corrective action requirements of this permit, may have started to release hazardous waste or constituents, the Permittee shall report this information to the Illinois EPA's BOL in writing within thirty (30) days of discovery. Upon the Illinois

EPA's written request, the Permittee shall determine the nature and extent of the contamination by following the procedures set forth in Conditions VI.B through VI.D, beginning on the date approved by Illinois EPA.

G. NOTIFICATION REQUIREMENTS FOR AN ASSESSMENT OF NEWLY-IDENTIFIED SOLID WASTE MANAGEMENT UNIT(S)

- 1. The Permittee shall notify the Illinois EPA's BOL in writing of any newly-identified SWMU(s) discovered during the course of groundwater monitoring, field investigations, environmental audits, or other means, no later than sixty (60) calendar days after discovery. For the purposes of this permit, newly-identified SWMUs shall mean all SWMUs located at the subject facility for which corrective actions have not previously been required by this permit, or which have not been previously listed in the RFA for this facility. The notification shall provide the following information, if available:
 - a. The location of the newly-identified SWMU in relation to other SWMUs on a scaled map or drawing;
 - b. The type and past and present function of the SWMU;
 - c. The general dimensions, capacities, and structural description of the unit (available drawings and specifications);
 - d. The period during which the unit was operated;
 - e. The specifics on all materials, including but not limited to, wastes and hazardous constituents, that have been or are being managed at the SWMU, to the extent available; and
 - f. The results of any relevant available sampling and analysis which may aid in determining whether releases of hazardous wastes or hazardous constituents have occurred or are occurring from the unit.
- 2. If the submitted information demonstrates a potential for a release of hazardous waste or constituents from the newly identified SWMU, the Illinois EPA may request in writing, that the Permittee prepare a Solid Waste Management Unit (SWMU) Assessment Plan and a proposed schedule of implementation and completion of the Plan for any additional SWMU(s) discovered subsequent to the issuance of this Permit.

- 3. Within 120 calendar days after receipt of an Illinois EPA request for a SWMU Assessment Plan, the Permittee shall prepare a SWMU Assessment Plan consistent with the requirements of VI.B through VI.E above. This SWMU Assessment Plan must also propose investigations, including field investigations if necessary, to determine the release potential to specific environmental media for the newly-identified SWMU. The SWMU Assessment Plan must demonstrate that the sampling and analysis program, if applicable, is capable of yielding representative samples and must include parameters sufficient to identify migration of hazardous waste and hazardous constituents from the newly-discovered SWMU(s) to the environment.
- 4. After the Permittee submits the SWMU Assessment Plan, the Illinois EPA shall either approve, approve with conditions, or disapprove the Plan in writing. If the plan is approved, the Permittee shall begin to implement the Plan within sixty (60) calendar days of receiving such written notification, or by the date specified by Illinois EPA. If the Plan is disapproved, the Illinois EPA shall notify the Permittee in writing of the Plans deficiencies and specify a due date for submittal of a revised plan.
- 5. The Permittee shall submit a report documenting the results of the approved SWMU Assessment Plan to the Illinois EPA in accordance with the schedule in the approved SWMU Assessment Plan. The SWMU Assessment Report shall describe all results obtained from the implementation of the approved SWMU Assessment Plan. The Illinois EPA's response will be similar to that described in Conditions VI.B through VI.E above.

H. COMPLETION OF CORRECTIVE MEASURES

- 1. CITGO shall complete those corrective measures contained in the Corrective Measures Program approved in accordance with Condition VI.C above and/or interim measures approved in accordance with Condition VI.I below. CITGO may request the Illinois EPA's BOL to consider corrective action complete at any point. The petition for such a request should include a demonstration of the following:
 - a. That there have been no releases of hazardous waste or hazardous constituents to any media from the SWMUs; or
 - b. That all releases are below the Release Criteria (initial corrective action objectives); or

- c. That all releases of hazardous waste or hazardous constituents to all media targeted within the RFI for investigation have been remediated to the target cleanup objectives specified within the approved Phase I CMP Report or an interim measures plan, and shall also describe how releases will be prevented in the future; or
- d. That, through the use of an Illinois EPA approved risk assessment, the corrective action is successful in protecting human health and the environment; or
- e. Some combination of the above demonstrations.

Appropriate documentation and certification must accompany such a demonstration. The actual documentation to be submitted will be described in the Phase II CMP Report.

CITGO shall be notified in writing if the Illinois EPA's BOL approves the request that the corrective actions can be considered complete. The notification from the Illinois EPA's BOL to CITGO may include a release from the financial requirements of Condition VI.E above. This action shall be subject to the appeal provisions set forth in Section 39(a) and 40(a) of the Environmental Protection Act.

- 2. A determination of no further action shall not preclude the Illinois EPA's BOL from requiring continued or periodic inspections of the SWMU(s) or continued or periodic monitoring of the specified environmental media when site-specific circumstances indicate that releases of hazardous wastes including hazardous constituents are likely to occur, if necessary to protect human health and the environment. Any requirement for long-term groundwater monitoring will only be required at a SWMU where substantial soil contamination exists (as determined by the Illinois EPA) or at any SWMU which would meet the definition of a land disposal unit. Any such requirement will be subject to the appeal provisions of Section 39(a) and 40(a) of the Illinois Environmental Protection Act.
- 3. A determination of no further action shall not preclude the Illinois EPA's BOL from requiring further investigations, studies, or remediation at a later date, if new information or subsequent analysis indicates a release or likelihood of a release from a SWMU at the facility that is likely to pose a threat to human health or the environment. In such a case, the Illinois EPA's BOL shall initiate a Permit modification to rescind the no further action determination.

I. <u>INTERIM MEASURES</u>

At any time during the RFI the Permittee may initiate interim measures and/or voluntary corrective actions for the purpose of preventing continuing releases and/or mitigating the results of releases and/or mitigating the migration of hazardous wastes or hazardous constituents. It may not be necessary to conduct all phases of the RFI investigation if the Illinois EPA's BOL and the Permittee agree that a problem can be corrected, or a release cleaned up, without additional study and/or without a formal corrective measures program (CMP).

- 1. Prior to implementing any interim measures, the Permittee must submit detailed information regarding the proposed interim measures to the Illinois EPA's BOL for approval. This information shall include, at a minimum:
 - a. Objectives of the interim measures: how the measure is mitigating a potential threat to human health and the environment and/or is consistent with and integrated into any long-term solution at the facility;
 - b. Design, construction, and maintenance requirements;
 - c. Schedules for design and construction; and
 - d. Schedules for progress reports.
- 2. If the Illinois EPA's BOL determines that a release cannot be addressed without additional study and/or a formal CMP, then the Illinois EPA's BOL will notify the Permittee that these must be performed. Any proposal made under this provision or any other activity resulting from such proposal, including the invocation of dispute resolution, shall not affect the schedule for implementation of the RFI or of any other portion of the permit.
- 3. If the Illinois EPA determines that interim measures are necessary to protect human health or the environment, the Permittee will be notified by way of a permit modification.

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SECTION VII: STANDARD CONDITIONS FOR POST-CLOSURE CARE

GENERAL REQUIREMENTS

- 1. EFFECT OF PERMIT. The existence of a RCRA permit shall not constitute a defense to a violation of the Environmental Protection Act or Subtitle G, except for development, modification or operation without a permit. Issuance of this permit does not convey property rights or any exclusive privilege. Issuance of this permit does not authorize any injury to persons or property or invasion of other private rights, or infringement of state or local law or regulations. (35 Ill. Adm. Code 702.181)
- 2. PERMIT ACTIONS. This permit may be modified, reissued or revoked for cause as specified in 35 Ill. Adm. Code 703.270 through 703.273 and Section 702.186. The filing of a request by the Permittee for a permit modification or revocation, or a notification of planned changes or anticipated noncompliance on the part of the Permittee does not stay the applicability or enforceability of any permit condition. (35 Ill. Adm. Code 702.146)
- 3. SEVERABILITY. The provisions of this permit are severable, and if any provision of this permit, or the application of any provision of this permit to any circumstance is held invalid, the application of such provision to other circumstances and the remainder of this permit shall not be affected thereby. (35 Ill. Adm. Code 700.107)
- 4. PERMIT CONDITION CONFLICT. In case of conflict between a special permit condition and a standard condition, the special condition will prevail. (35 Ill. Adm. Code 702.160)
- 5. DUTY TO COMPLY. The Permittee shall comply with all conditions of this permit except for the extent and for the duration such noncompliance is authorized by an emergency permit. Any permit noncompliance constitutes a violation of the Environmental Protection Act and is grounds for enforcement action; permit revocation or modification; or for denial of a permit renewal application. (35 Ill. Adm. Code 702.141 and 703.242)
- 6. DUTY TO REAPPLY. If the Permittee wishes to continue an activity allowed by this permit after the expiration date of this permit, the Permittee must apply for a new permit at least 180 days before this permit expires, unless permission for a later date has been granted by the Illinois EPA. (35 Ill. Adm. Code 702.142 and 703.125)
- 7. PERMIT EXPIRATION. This permit and all conditions herein will remain in effect beyond the permit's expiration date if the Permittee has submitted a timely, complete application (see 35 Ill. Adm. Code 703.181-703.209) and through no fault of the Permittee the Illinois EPA has not issued a new permit as set forth in 35 Ill. Adm. Code 702.125.



- 8. NEED TO HALT OR REDUCE ACTIVITY NOT A DEFENSE. It shall not be a defense for the Permittee in an enforcement action that it would have been necessary to halt or reduce the permitted activity in order to maintain compliance with the conditions of this permit. (35 Ill. Adm. Code 702.143)
- 9. DUTY TO MITIGATE. In the event of noncompliance with the permit, the permittee shall take all reasonable steps to minimize releases to the environment, and shall carry out such measures as are reasonable to prevent significant adverse impacts on human health or the environment. (35 Ill. Adm. Code 702.144)
- 10. PROPER OPERATION AND MAINTENANCE. The Permittee shall at all times properly operate and maintain all facilities and systems of treatment and control (and related appurtenances) which are installed or used by the Permittee to achieve compliance with the conditions of this permit. Proper operation and maintenance includes effective performance, adequate funding, adequate operator staffing and training, and adequate laboratory, and process controls, including appropriate quality assurance procedures. This provision requires the operation of back-up or auxiliary facilities or similar systems only when necessary to achieve compliance with the conditions of the permit. (35 Ill. Adm. Code 702.145)
- 11. DUTY TO PROVIDE INFORMATION. The Permittee shall furnish to the Illinois EPA, within a reasonable time, any relevant information which the Illinois EPA may request to determine whether cause exists for modifying, revoking and reissuing or terminating this permit, or to determine compliance with this permit. The Permittee shall also furnish to the Illinois EPA, upon request, copies of records required to be kept by this permit. (35 Ill. Adm. Code 702.148)
- 12. INSPECTION AND ENTRY. The Permittee shall allow an authorized representative of the Illinois EPA, upon the presentation of credentials and other documents as may be required by law, to:
 - a. Enter at reasonable times upon the Permittee's premises where a regulated facility or activity is located or conducted, or where records must be kept under the conditions of this permit;
 - b. Have access to and copy, at reasonable times, any records that must be kept under the conditions of this permit;
 - c. Inspect at reasonable times any facilities, equipment (including monitoring and control equipment), practices, or operations regulated or required under this permit; and

d. Sample or monitor, at reasonable times, for the purposes of assuring permit compliance or as otherwise authorized by the appropriate Act, any substances or parameters at any location. (35 Ill. Adm. Code 702.149)

13. MONITORING AND RECORDS. (35 Ill. Adm. Code 702.150)

- a. Samples and measurements taken for the purpose of monitoring shall be representative of the monitored activity. The method used to obtain a representative sample of the waste must be the appropriate method from Appendix A of 35 Ill. Adm. Code 721. Laboratory methods must be those specified in Test Methods for Evaluating Solid Waste: Physical/Chemical Methods, SW-846, latest versions; Methods for Chemical Analysis of Water and Wastes, EPA-600/4-79-020, latest versions; or an equivalent method as specified in the approved Waste Analysis Plan.
- b. The Permittee shall retain records of all monitoring information, including all calibration and maintenance records and all original strip chart recordings for continuous monitoring instrumentation, copies of all reports and records required by this permit, and records of all data used to complete the application for this permit for a period of at least 3 years from the date of the sample, measurement, report or application. These periods may be extended by request of the Illinois EPA at any time. The permittee shall maintain records from all groundwater monitoring wells and associated groundwater surface elevations, for the active life of the facility, and for disposal facilities for the post-closure care period as well.
- c. Records of monitoring information shall include:
 - i. The date(s), exact place, and time of sampling or measurements;
 - ii. The individual(s) who performed the sampling or measurements;
 - iii. The date(s) analyses were performed;
 - iv. The individual(s) who performed the analyses;
 - v. The analytical technique(s) or method(s) used; and
 - vi. The result(s) of such analyses. (35 Ill. Adm. Code 702.150)
- 14. REPORTING PLANNED CHANGES. The permittee shall give written notice to the Illinois EPA as soon as possible of any planned physical alterations or additions to the permitted facility. In general, proposed changes to the facility will need to be submitted

- to the Illinois EPA as permit modification request that complies with the requirements of 35 Ill. Adm. Code 703.280. (35 Ill. Adm. Codes 702.152(a))
- 15. CONSTRUCTION CERTIFICATION. For a new hazardous waste management facility, the permittee shall not commence treatment, storage or disposal of hazardous waste; and for a facility being modified the permittee shall not treat, store or dispose of hazardous waste in the modified portion of the facility, until:
 - a. The permittee has submitted to the Illinois EPA by certified mail or hand delivery a letter signed by the permittee and a registered professional engineer stating that the facility has been constructed or modified in compliance with the permit; and
 - b. 1. The Illinois EPA has inspected the modified or newly constructed facility and finds it is in compliance with the condition of the permit; or
 - 2. If, within 15 days of the date of submission of the letter in paragraph (a), the permittee has not received notice from the Illinois EPA of its intent to inspect, prior inspection is waived and the permittee may commence treatment, storage or disposal of hazardous waste. (35 Ill. Adm. Code 703.247)
- 16. ANTICIPATED NONCOMPLIANCE. The Permittee shall give advanced written notice to the Illinois EPA of any planned changes in the permitted facility or activity which may result in noncompliance with permit requirements, regulations, or the Act. (35 Ill. Adm. Code 702.152(b))
- 17. TRANSFER OF PERMITS. This permit may not be transferred by the permittee to a new owner or operator unless the permit has been modified or reissued pursuant to 35 Ill. Adm. Code 703.260(b) or 703.272. Changes in the ownership or operational control of a facility must be made as a Class 1 modification with the prior written approval of the Illinois EPA. The new owner or operator shall submit a revised permit application no later than 90 days prior to the scheduled change. (35 Ill. Adm. Code 703.260)
- 18. MONITORING REPORTS. Monitoring results shall be reported at the intervals specified in the permit. (35 Ill. Adm. Code 702.152(d))
- 19. COMPLIANCE SCHEDULES. Reports of compliance or noncompliance with, or any progress reports on, interim and final requirements contained in any compliance schedule of this permit shall be submitted no later than specified in 35 Ill. Adm. Code 702.162. (35 Ill. Adm. Code 702.152(e))

20. TWENTY-FOUR HOUR REPORTING.

- a. The Permittee shall report to the Illinois EPA any noncompliance with the permit which may endanger health or the environment. Any such information shall be reported orally within 24 hours from the time the Permittee becomes aware of the following circumstances. This report shall include the following:
 - i. Information concerning the release of any hazardous waste that may cause an endangerment to public drinking water supplies.
 - ii. Information concerning the release or discharge of any hazardous waste or of a fire or explosion at the HWM facility, which could threaten the environment or human health outside the facility.
- b. The description of the occurrence and its cause shall include:
 - i. Name, address, and telephone number of the owner or operator;
 - ii. Name, address, and telephone number of the facility;
 - iii. Date, time, and type of incident;
 - iv. Name and quantity of material(s) involved;
 - v. The extent of injuries, if any;
 - vi. An assessment of actual or potential hazards to the environment and human health outside the facility, where applicable; and
 - vii. Estimated quantity and disposition of recovered material that resulted from the incident.
- c. A written submission shall also be provided within 5 days of the time the Permittee becomes aware of the circumstances. The written submission shall contain a description of the noncompliance and its cause; the period of noncompliance including exact dates and times and if the noncompliance has not been corrected; the anticipated time it is expected to continue; and steps taken or planned to reduce, eliminate, and prevent recurrence of the noncompliance. The Illinois EPA may waive the five day written notice requirement in favor of a written report within fifteen days. (35 Ill. Adm. Code 702.152(f) and 703.245(b))
- 21. OTHER NONCOMPLIANCE. The Permittee shall report all instances of noncompliance not otherwise required to be reported under Standard Conditions 14, 15,

- and 16, at the time monitoring reports, as required by this permit, are submitted. The reports shall contain the information listed in Standard Condition 20. (35 Ill. Adm. Code 702.152(g))
- 22. OTHER INFORMATION. Where the Permittee becomes aware that it failed to submit any relevant facts in the permit application, or submitted incorrect information in a permit application or in any report to the Illinois EPA, the Permittee shall promptly submit such facts or information. (35 Ill. Adm. Code 702.152(h))
- 23. SUBMITTAL OF REPORTS OR OTHER INFORMATION. All written reports or other written information required to be submitted by the terms of this permit shall be sent to:

Illinois Environmental Protection Agency Bureau of Land Planning and Reporting Section - #24 1021 North Grand Avenue East Post Office Box 19276 Springfield, Illinois 62794-9276

- 24. SIGNATORY REQUIREMENT. All permit applications, reports or information submitted to the Illinois EPA shall be signed and certified as required by 35 Ill. Adm. Code 702.126. (35 Ill. Adm. Code 702.151)
- 25. CONFIDENTIAL INFORMATION. Any claim of confidentiality must be asserted in accordance with 35 Ill. Adm. Code 702.103 and 35 Ill. Adm. Code 161.
- 26. DOCUMENTS TO BE MAINTAINED AT FACILITY SITE. The Permittee shall maintain at the facility, until post-closure is complete, the following documents and amendments, revisions and modifications to these documents:
 - a. Post-closure plan as required by 35 Ill. Adm. Code 724.218(a) and this permit.
 - b. Cost estimate for post-closure care as required by 35 Ill. Adm. Code 724.244(d) and this permit.
 - c. Operating record as required by 35 Ill. Adm. Code 724.173 and this permit.
 - d. Inspection schedules as required by 35 Ill. Adm. Code 724.115(b) and this permit.

GENERAL FACILITY STANDARDS

27. GENERATOR REQUIREMENTS. Any hazardous waste generated at this facility shall be managed in accordance with the generator requirements at 35 Ill. Adm. Code Part 722.

- 28. SECURITY. The Permittee shall comply with the security provisions of 35 Ill. Adm. Code 724.114(b) and (c).
- 29. GENERAL INSPECTION REQUIREMENTS. The Permittee shall follow the approved inspection schedule. The Permittee shall remedy any deterioration or malfunction discovered by an inspection as required by 35 Ill. Adm. Code 724.115(c). Records of inspections shall be kept as required by 35 Ill. Adm. Code 724.115(d).

PREPAREDNESS AND PREVENTION

30. DESIGN AND OPERATION OF FACILITY. The Permittee shall maintain and operate the facility to minimize the possibility of fire, explosion, or any unplanned sudden or non-sudden release of hazardous waste constituents to air, soil, or surface water which could threaten human health or the environment. (35 Ill. Adm. Code 724.131)

RECORD KEEPING

31. OPERATING RECORD. The Permittee shall maintain a written operating record at the facility in accordance with 35 Ill. Adm. Code 724.173.

POST-CLOSURE

- 32. CARE AND USE OF PROPERTY. The Permittee shall provide post-closure care for the facility as required by 35 Ill. Adm. Code 724.217 and in accordance with the approved post-closure plan.
- 33. AMENDMENT TO POST-CLOSURE PLAN. The Permittee must amend the post-closure plan whenever a change in the facility operation plans or facility design affects the post-closure plan or when an unexpected event has occurred which has affected the post-closure plan pursuant to 35 Ill. Adm. Code 724.218(d).
- 34. COST ESTIMATE FOR POST-CLOSURE. The Permittee's original post-closure cost estimate, prepared in accordance with 35 Ill. Adm. Code 724.244, must be:
 - a. Adjusted for inflation either 60 days prior to each anniversary of the date on which the first closure cost estimate was prepared or if using the financial test or corporate guarantee, within 30 days after close of the firm's fiscal year.
 - b. Revised whenever there is a change in the facility's post-closure plan increasing the cost of closure.
 - c. Kept on record at the facility and updated. (35 Ill. Adm. Code 724.244)

35. FINANCIAL ASSURANCE FOR POST-CLOSURE CARE. The Permittee shall demonstrate compliance with 35 Ill. Adm. Code 724.245 by providing documentation of financial assurance, as required by 35 Ill. Adm. Code 724.251, in at least the amount of the cost estimates required by the previous Permit Condition. Changes in financial assurance mechanisms must be approved by the Agency pursuant to 35 Ill. Adm. Code 724.245.

Financial assurance documents submitted to Illinois EPA should be directed to the following address:

Illinois Environmental Protection Agency Bureau of Land #24 Financial Assurance Program 1021 North Grand Avenue East P.O. Box 19276 Springfield, IL 62794-9276

36. INCAPACITY OF OWNERS OR OPERATORS, GUARANTORS, OR FINANCIAL INSTITUTIONS. The Permittee shall comply with 35 Ill. Adm. Code 724.248 whenever necessary.

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SECTION VIII - SPECIAL CONDITIONS

- 1. The permittee is required to complete and provide the following 39i Certification forms to the Illinois EPA Bureau of Land:
 - a. A 39i (legal entity) certification form must be filled out for the <u>legal entity</u> (i.e. Company) that appears on the permit application being submitted, and
 - b. A 39i (individual) form must be filled out for the <u>individual</u> that signs the 39i (legal entity) certification form, and
 - c. A 39i (individual) form must be filled out for each individual who signs the permit application.

Note: If the applicant wants additional staff to be able to send in future modifications, certifications, etc. those individuals should also send in an individual 39i certification form.

- 2. The permittee shall submit the necessary 39i certification form(s) and supporting documentation within 30 days of the effective date of this permit and thereafter within 30 days of any of the following events:
 - a. The owner or operator, or officer of the owner or operator, or any employee who has control over operating decisions regarding the facility has violated federal, State, or local laws, regulations, standards, or ordinances in the operation of waste management facilities or sites; or
 - b. The owner or operator, or officer of the owner or operator, or any employee who has control over operating decisions regarding the facility has been convicted in this or another State of any crime which is a felony under the laws of this State, or conviction of a felony in a federal court; or
 - c. The owner or operator, or officer of the owner or operator, or any employee who has control over operating decisions regarding the facility has committed an act of gross carelessness or incompetence in handling, storing, processing, transporting, or disposing of waste.
 - d. A new person is associated with the owner or operator who can sign the permit application or who has control over operating decisions regarding the facility, such as a corporate officer or a delegated employee.

The 39i certification must describe the violation(s), convictions, carelessness, or incompetence as outlined in (a), (b), or (c) above and must include the date that a new person as described in (d) above began employment with the applicant.

The 39i certification form and supporting documentation shall be submitted to the address specified below:

Illinois Environmental Protection Agency Bureau of Land #33 – 39i Certification 1021 North Grand Avenue East P.O. Box 19276 Springfield, IL 62794-9276

[The 39i certification forms will be treated as confidential by the Agency. The applicant may also request the information on the 39i certification form be maintained confidential in accordance with 2 IAC 1828.]

- 3. Within 60 days of the effective date of this permit, the permittee shall provide revised figures (and legal description if necessary) of the property that consistently identify the property line south of the LTF as a Class 1* permit modification.
- 4. Within 60 days of the effective date of this permit CITGO shall submit a closure plan for the LTF as a Class 1* permit modification. This submittal shall include a properly completed IEPA permit application form LPC-PA23. The PA23 Form must be signed and sealed by a qualified Professional Engineer registered in the State of Illinois and the owner/operator must check the box identifying the appropriate certification statement.

The closure plan shall describe how the permittee will address following specific requirements for the closure of land treatment units:

- a. Continue all operations (including pH control) necessary to maximize degradation, transformation, or immobilization of hazardous constituents within the treatment zone, as required under Section 724.373(a), except to the extent such measures are inconsistent with 35 IAC 724.380(a)(8);
- b. Continue all operations in the treatment zone to minimize run-off of hazardous constituents, as required under Section 724.373(b);
- c. Maintain the run-on control system required under Section 724.373(c);
- d. Maintain the run-off management system required under Section 724.373(d);
- e. Control wind dispersal of hazardous waste if required under Section 724.373(f);

- f. Continue to comply with any prohibitions or conditions concerning growth of food-chain crops under Section 724.376;
- g. Continue unsaturated zone monitoring in compliance with Section 724.378 (except soil-pore liquid monitoring is not required);
- h. Establish a vegetative cover on the portion of the facility being closed at such time that the cover will not substantially impede degradation, transformation, or immobilization of hazardous constituents in the treatment zone. The vegetative cover must be capable of maintaining growth without extensive maintenance;
- i. The horizontal extent of the land treatment areas indicated on drawings in the closure plan must include those locations where hazardous constituents were found at statistically significant concentrations over background. At a minimum this includes the following perimeter sample (PS) locations identified in the 1995 Site Characterization Report as: LAI-4PS, LAI-12PS, LAI-15PS, LAII-4PS, LAII-1PS, LAII-1PS, LAII-1PS, LAII-1PS, LAII-3PS, LAIV-3PS, LAI-4PSA, and LAI-12PSA.
- 5. The closure plan required in Condition VIII.4 shall include:
 - a. A schedule for closure of the land treatment areas.
 - b. A revised cost estimate for closure of the land treatment areas. The cost estimate must be provided in current (2010) dollars.
 - c. Financial assurance that meets the requirements of 35 IAC Part 724 Subpart H in the amount of the revised closure cost estimate.
- 6. The closure plan required in Condition VIII.4 shall include the following in support of its demonstration of how closure of the LTF will meet the requirements for run-on and run-off control systems required by of 35 IAC 724.380(a)(3) and (a)(4):
 - a. Detailed engineering drawings similar to Figures 131-CD-444 & 445 in Appendix I.1 of the application that show final contours of the four areas in the LTF and drainage control structures (berms, ditches, rip/rap, concrete pipe, etc.) are capable of meeting the regulations. The use of silt fences is not considered acceptable for long term management of run-on and run-off from the LTF.
 - b. Calculations demonstrating the drainage control structures shown in the engineering drawings are capable of handling the precipitation of a 24 hr 25 year storm event (i.e. 6 inches of rain) without being eroded or otherwise damaged. These calculations need to include the maximum velocity(s) the water will reach

- in the drainage ditches and a demonstration that this velocity will not erode or otherwise damage the drainage ditches.
- c. Provisions for addressing the piles of sediments from the Stormwater basin that are currently located on Area I. If CITGO intends to use this material as fill in another area in the LTF, this location must be specified on scale drawings.
- d. The specifications for the types of grasses that will be used to form the vegetative cover on the land treatment areas.
- 7. Within 60 days of the effective date of this permit, the permittee shall provide financial assurance for the amount of the closure cost and liability insurance specified in Section III of the permit. The amount of financial assurance specified in this condition must be in current (2010) values. The financial assurance documents must be on the forms approved by Illinois EPA and meet the requirements of 35 Ill. Adm Code 724 Subpart H. This revision to the permit shall be considered a Class 1* permit modification.
- 8. Within 60 days of the effective date of this permit, the permittee shall provide a revised post-closure cost estimate that includes 1) the cost for abandonment of piezometers and groundwater monitoring wells associated with the LTF, 2) updates the unit costs to current 2010 prices, 3) calculate the post-closure cost estimate by multiplying the annual cost by the number of years of post-closure as required by 35 IAC 724.244(a)(2). These revisions will be considered a Class 1* permit modification.

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SECTION IX: REPORTING AND NOTIFICATION REQUIREMENTS

The reporting and notification requirements of each section of the RCRA permit are summarized below. This summary is provided to <u>highlight</u> the various reporting and notification requirements of this permit.

Condition	Submittal	<u>Due Date</u>		
III. RCRA	III. RCRA CLOSURE			
III.E.2	File survey plat with County Recorder that records the type, location, and quantity of hazardous waste disposed within each area.	No later than the date the certification of closure of the LTF is submitted to the Illinois EPA		
III.E.4	Closure certification report that the LTF has been closed in accordance with the approved permit application and conditions of permit.	Within 60 days after closure is complete.		
III.E.4a	Class 1* permit modification requesting to delete those conditions not associated with post-closure care.	Within 60 days after closure is complete.		
III.E.4c	Documentation that survey plat was filed with County recorder.	Within 60 days after closure is complete.		
III.E.4c	Documentation that the permittee has recorded notation on the deed to the facility property regarding hazardous waste management at the site.	Within 60 days after closure is complete.		
IV. POST-	CLOSURE CARE			
IV.D.7	Submit the results of each annual soil sampling event to IEPA.	By January 15 of each year.		
IV.D.9.a	Notify the Illinois EPA that there is a statistically significant increase (SSI) of hazardous constituents below the treatment zone in the LTF.	Within 7 days of finding an SSI.		

Condition	Submittal	Due Date
IV.D.9.b	Apply for a permit modification to modify the post-closure practices.	Within 90 days of finding an SSI.
IV.D.9.c.i	Notify the Illinois EPA that there is a statistically significant increase (SSI) of hazardous constituents below the treatment zone in the LTF, and the permittee intends to demonstrate it is due to a source other than the regulated units.	Within 7 days of finding an SSI.
IV.D.9.c.ii	Submit a demonstration that the SSI is not due to regulated units.	Within 90 days of finding an SSI.
IV.D.9.c.iii	Submit a permit application to modify the unsaturated zone monitoring program as appropriate.	Within 90 days of finding an SSI.
IV.F.2	Certification that the post-closure care for the LTF was performed in accordance with the specifications in the approved Post-closure Plan.	Within 60 days after post- closure care is complete.
v. groun	DWATER DETECTION MONITORING	
J.2	Groundwater monitoring data and statistical calculations required semi-annually. Samples Collected During Preceding Months of: April – June October – December	Results due to IEPA by: July 15 January 15
J.3	Groundwater Surface Elevation	Semi-Annually
J.4	Groundwater flow rate and direction.	Annually with groundwater data due July 15
J.5	Surveyed Elevation	Every 5 years <u>or</u> at the request of IEPA, <u>or</u> whenever the elevation changes. In addition, for new wells, at the time of installation

Condition	Submittal	<u>Due Date</u>
J.6	Elevation of the bottom of each well.	Every year due July 15
J.10.a	Notify Illinois EPA in writing of statistically significant increase	Within 7 days after discovery of increase.
J.10.b	Sample groundwater in all wells for Appendix I constituents.	Immediately after increase is discovered.
J.10.d	Apply for permit modification establishing compliance monitoring program.	Within 90 days after discovery of increase.
J.10.e	Provide Illinois EPA with corrective action feasibility plan.	Within 180 days after discovery of increase.
J.11.a	Notify the Illinois EPA in writing of intent to make demonstration	Within 7 days the increase was discovered.
J.11.b	Submit a report to Illinois EPA which demonstrates than a source other than a regulated unit caused the increase, or resulted from error.	Within 90 days the increase was discovered.
J.11.c	Submit to the Illinois EPA application to change detection monitoring program.	Within 90 days the increase was discovered.
VI. CORRI	ECTIVE ACTION	
B.6	Phase I/II RFI Report	To be specified in the Phase I/II workplan, subject to Illinois EPA approval.
B.7	Phase II Workplan	Within 90 days of notification that Phase II is required.
B.7	Supplemental Investigation workplan	Within 90 days of notification that supplemental investigation is required

Condition	Submittal	Due Date
С	Phase I CMP Report	Within 120 days of receiving notification that corrective measures are necessary
D	Annual Sewer Inspection and Maintenance Report	March 31 of each following year
E.1	Updated Corrective Action Cost Estimate	Within 120 days of the of the effective date of this permit
E.1	Revised Cost estimate (with the initial submittal of each RFI Report and/or CMP Report).	Upon written Illinois EPA request
G.1	Notification of Newly Discovered SWMU	Within 60 days after discovery.
G.3	Assessment Plan for Newly Discovered SWMU	Within 120 days of Illinois EPA's request.
G.4	Implementation of Assessment for Newly Discovered SWMU	Within 60 days of approval of plan, or by date specified by Illinois EPA.
VII. STAN	DARD CONDITIONS FOR POST-CLOSURE	
6	Complete application for new permit.	At least 180 days prior to permit expiration.
11	Information requested by Illinois EPA and copies of records required to be kept by this permit.	Reasonable time.
14	Notify Illinois EPA of planned physical alterations or additions.	At least 15 days prior to planned change.
15	Construction certification signed by permittee and P.E.	Prior to managing waste in a new or modified portion of the facility.

Condition	Submittal	<u>Due Date</u>
16	Notification of anticipated noncompliance.	Prior to modification or action.
17	Application for permit modification indicating permit is to be transferred.	90 days prior to the scheduled change
19	Submission of any information required in a compliance schedule.	Within 14 days after each schedule date.
20	Report to Illinois EPA any non-compliance which may endanger health or environment.	
	telephone	Within 24 hours after discovery.
	in writing	Within 5 days after discovery.
21	Report all other instances of noncompliance.	March 1 of each year along with Annual Report.
35	Provide documentation of financial assurance as required by 35 Ill. Adm. Code 724.251	Annually, or when cost estimate changes
36	Notify Illinois EPA of commencement of voluntary or involuntary bankruptcy proceedings.	Within 10 days after commencement of proceeding.
VIII. SPEC	CIAL CONDITIONS	
2	39i Certification Forms	Within 30 days of the effective date of this permit and within 30 days of events specified in permit.
3	Revised figures (and legal description if necessary) of the property that consistently identify the property line as a Class 1* permit modification.	Within 60 days of the effective date of this permit
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Condition	Submittal	<u>Due Date</u>
4	Closure plan for the land treatment facility (LTF) as a Class 1* permit modification.	Within 60 days of the effective date of this permit
7	Financial assurance for the amount of the closure cost and liability insurance specified in Section III of the permit.	Within 60 days of the effective date of this permit
8	Revised post-closure cost estimate	Within 60 days of the effective date of this permit
ATTACHM INVESTIG	IENT C-1: GUIDANCE FOR CONDUCTING A ATION	RCRA FACILITY
V	Completion of Group 1 or 2 RFI Phase I/II investigation and submission of report	Within time frame established in the Phase I/II Workplan, subject to Illinois EPA's approval.
Submission of RFI Phase II Workplans		Within 90 days of notification that Phase II is required.
	Completion of RFI Phase II investigation and submission of Phase II Report	Within time frame established in the Phase II workplan subject to Illinois EPA's approval.
	Submission of Supplemental Investigation Workplan	Within 90 days of notification that supplemental investigation is required.
	Completion of supplemental Investigation and Submission of Report and Summary	To be specified in the supplemental investigation workplan subject to approval by Illinois EPA.
	Annual RCRA Sewer Inspection and Maintenance Report	March 31 of each following

Condition	Submittal	Due Date		
	Corrective Action Progress Report	Upon request and to be specified by Illinois EPA.		
ATTACHM	IENT D: CORRECTIVE MEASURES PROGRA	M OVERVIEW		
3.0	Conceptual Design Report	Within 90 days of approval of the Phase II CMP Report		
4.0	Final Design Report	Within 120 days of approval of the Conceptual Design Report or as otherwise specified by the Illinois EPA		
5.0	Construction Progress Reports	Quarterly during the construction/installation of the corrective measures		
	Construction Report	To be specified in the Final Design Report		
	Operation and Maintenance Plan	To be specified in the Final Design Report		
6.0	Periodic Operations and Maintenance Progress Reports	To be specified in the Operation and Maintenance Plan.		

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Renewal RCRA Hazardous Waste Post-Closure Permit

CITGO Lemont Refinery

USEPA ID No: ILD041550567 STATE ID No: 1978030004 Log No: B-162R

ATTACHMENT A CLOSURE CERTIFICATION FORM

This certification is to be completed by both the responsible officer and by the qualified Professional Engineer registered in Illinois upon completion of closure. Submit one copy of the certification with original signatures and three additional copies.

Closure Certification

The four areas in the hazardous waste Land Treatment Facility (D81) at the CITGO Lemont Refinery in Lemont, Illinois have been closed in accordance with the Agency approved closure plan.

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

USEPA ID Number	Facility Name
	A STOLLAR OF THE STOL
Signature of Owner	Printed Name and Title
Signature of Operator	Printed Name and Title
Signature of P.E.	Printed Name of P.E. and
Signature of F.D.	Illinois Registration Number
	P.E. Seal and
Date	Expiration Date of License

Renewal RCRA Hazardous Waste Post-Closure Permit

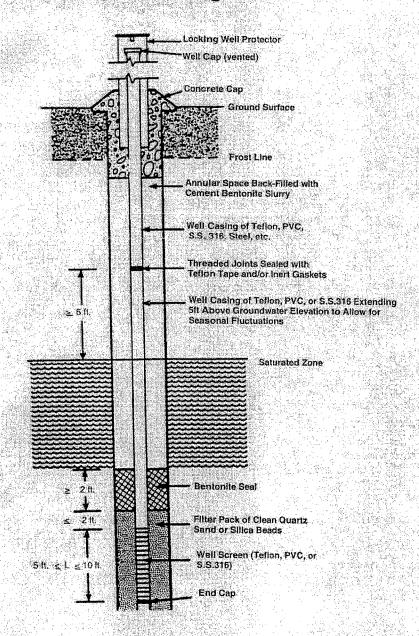
CITGO Lemont Refinery

USEPA ID No: ILD041550567 STATE ID No: 1978030004 Log No: B-162R

ATTACHMENT B

GROUNDWATER MONITORING ATTACHMENTS

Monitoring Well Diagram



	Illinois Environmental Protection Agency			F	ielo	i Bo	rin	g Log	itali Naj	Pageof	
Site ID	No. Federal ID No.									ring Well No.	
Site Na	me:		<u>.</u>	100	. 1	100			1.1	411 - 14	
Quadra	ngle: Sec. T.	R	-						4.00	etion Depth:	
UTM (c	or State			Auger Depth: Rot					4.825		
I atimal					515	irt:			rm	she i ac a caracteristic and a	
				inger a	<u> </u>	C 4	NA D	LES		Personnel	
	Location: Equipment:				1 (1) 2 (1)	3A	171 E	CES		G-	
		like .		Sample No.	de Type	Sample Recovery (X)	Penetrometer	N Values (Blow Counts)	OVA or HNU Readings	D- H- H-	
Elev.	Description of Material	Graphic Log	Depth In Feet	Samp	Sam	Sam	Penet	N Va (Blow	OVA. Read	REMARKS	
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Illinois	Environmental Protection Agency	Well Com	pletion Report
Site Number:	Cc	the contract of the contract o	
Site Name:	•		Well #:
	Y (or) Latitude:	" o " Longitude:	Borehole #:
Tiane Coordinate, A.		The second secon	
Surveyed by:		IL Registration #:	
Drilling Contractor:		Driller:	
Consulting Firm:		Geologist:	
		Drilling Fluid (Type):	
Logged By:		Date Started:	Date Finished:
Report Form		Date:	
Completed by:			
ANNULAR S	PACE DETAILS	Elevations Depths (MSL)* (BGS)	(.01ft.)
*			Top of Protective Casing
			Top of Riser Pipe
Type of Surface Seal			Ground Surface
Type of Annular Seal	ant		Top of Annular Sealant
Installation Metho	id		Static Water Level (After Completion)
Setting Time:			
 A.A. Sermony School Solver Conference 	cal Granular, Pellet, Slurry (Choose One)	700	Top of Seal
Installation Metho	od:		Top of Sand Pack
Setting Time:	1		Top of Screen
Type of Sand Pack:	1		Bottom of Screen
Grain Size:	(Sieve Size)		Bottom of Well
Installation Meth	od:	* Referenced to a National	Bottom of Boreliole Geodetic Datum
Type of Backfill Ma	terial: (if applicable)	CASING MEASURMENTS	
Installation Meth	od	Diameter of Borehole (inches)	
WELL CONSTRUCT	ION MATERIAL use one type of material for each area)	ID of Riser Pipe (inches) Protective Casing Length (feet)	
Protective Casing	SS304, SS316, PTFE, PVC, or Other	Riser Pipe Length (feet) Bottom of Screen to End Cap (feet) Screen Length (1st slot to last slot) (feet)	
Riser Pipe Above W.T. Riser Pipe Below W.T.	SS304, SS316, PTFE, PVC, or Other SS304, SS316, PTFE, PVC, or Other	Total Length of Casing (feet) Screen Slot Size**	
Screen	SS304, SS316, PTFE, PVC, or Other	**Hand-Slotted Well Screens are Unacc	eptable

ILLINOIS EPA MONITOR WELL PLUGGING AND ABANDONMENT PROCEDURES.

		Well Construction	Plugging Procedure
ıt Wells	1-A	If backfilled with cement grout above bentonite seal and/or sandpack:	 Cut casing off at desired depth Mix neat cement slurry (5 gal. water per 94 lb. bag cement). Insert tremi pipe (1" Ld. pvc) into well and extend to bottom. Slowly pump slurry under low pressure through temi pipe. Slowly withdraw tremi pipe - making sure bottom of pipe remains below pure slurry. Continue slow pumping until all formation water and the watery slurry mix is displaced from top of casing:
i. Unconsolidated Sediment Wells		if backfilled with soft sediments (cuttings) above bentonite seal and/or sandpack;	1. Knock out and remove thin surface concrete plug, if present. 2. Re-auger entire length of well. 3. Remove well casing from re-augured borehole. 4. Mix neat cement slurry (5 gal. water per 94 lb. bag cement). 5. Insert tremi pipe (1" i.d. pvo) into augers and extend to bottom. 6. Slowly pump slurry under low pressure through tremi pipe. 7. Continue slow pumping until all formation water and the water slurry mix is displaced from top of casing. 8. Slowly withdraw tremi pipe - making sure bottom of pipe remains below pure slurry. 9. Pull a flight of augers (5" if in unstable materials and hole collapse is likely or 10" if in competent material and collapse is unlikely). 10. Top off cement slurry after each flight is removed.
	I-C	if monitor well construction is unknown:	1: Follow procedures in I.A.
II. Bedrock Wells	II-A	All bedrock monitor wells:	 Cut casing off at desired depth. Mix neat cement slurry (5 gal. water per 94 lb. bag cement). Insert tremi-pipe (1" f.d. pvc) into well and extend to bottom. Slowly pump slurry under low pressure through tremi pipe. Slowly withdraw pipe making sure bottom of pipe remains below pure slurry. Continue slow pumping until all formation water and the watery slurry mix is displaced from top of casing.

Well Plugging Procedures (revised 02/06/02)

Formatting Requirements for the 01 Record of the Electronically Submitted Groundwater and Leachate Data (the 01 Record portion of the LPC-160 is included for example purposes)

	F LAND POLLUTION CONTROL Page 1 of HEMICAL ANALYSIS FORM
7 8 REPORT DUE DATE 7 7 7 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	FEDERAL ID NUMBER
SITE INVENTORY NUMBER	
REGIONCÖ.	
PACILITY NAME	
FOR TEPA USE ONLY	BACKGROUND SAMPLE (X) TIME COLLECTED
LAB	UNABLE TO COLLECT SAMPLE
DATE RECEIVED J J 1 17 142 AL D V 17	(see Instructions) 59
42 M D 44 47	MONITOR POINT SAMPLED BY (see Instructions) 60 OTHER (SPECIFY)
SAMPLE APPEARANCE	SAMPLE FIELD FILTERED — INORGANICS (X) ORGANICS (X) at
COLLECTOR COMMENTS	102 102 103 103 103 103 103 103 103 103 103 103
LAB COMMENTS	
-1L 532-1213 LPC-160 01/90	11 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1
1021. Disclosure of this is	to require this information under Illinois Revised Statutes, 1979. Chapter 11.14, Section 1004 and information is required. Failure to do so may result in a civil penalty up to \$25,000 for each day the to \$1,000.00 and imprisonment up to one year. This form has been approved by the Forms
Wastes, Physical/Chemica	must be performed in accordance with the methods contained in "Test Methods for Evaluating Solid if Methods," SW-846, 3 rd Edition, September 1986 or equivalent methods approved by the Agency, stody control and quality assurance quality control procedures must be maintained in accordance with

KEY:

Spaces Numbered	<u>Description</u>	<u>Format</u>
Spaces 1-7	Record Code	LPCSM01
Space 8	Trans Code	Α
Spaces 9-18	Site ID	0000000000
Spaces 19-22	Mon Pt ID	G000
Spaces 23-28	Date Collected	000000
Space 29	Lab	
Spaces 30-35	Filler	
Spaces 36-41	Report Due Date	000000
Spaces 42-47	Date Received	000000
Spaces 48-53	Filler 2	
Space 54	Background Sample	
Spaces 55-58	Time Collected	0000
Space 59	Unable to Collect Sample	
Space 60	Monitoring Point Sampled By	
Space 61	Field Filtered - Inorganic	
Space 62	Field Filtered - Organic	
Spaces 63-102	Sample Appearance	
Spaces 103-142	Collector Comments	
Spaces 143-149	Filler 3	
Spaces 150-199	Lab Comments	

Format LPCSM02

000000000

Formatting Requirements for the 02 Record of the Electronically Submitted Groundwater and Leachate Data (the 02 Record portion of the LPC-160 is included for example purposes)

	RECORD CODE L P C S M 0	7	TRA	ANS	COD	E A	(COLUMNS 9-29 FROM ABOVE)
	<u>FIELD MEASUREMENTS</u> CONSTITUENT DESCRIPTION AND REQUIRED UNIT OF MEASURE	STORET NUMBER	Remarks See Inst.	Replicate	< or >		VALUE
Q	TEMP OF WATER (unfiltered °F)	0 0 0 1 1	35	36	37	38	
Q	SPEC COND (unfiltered umhos)	00094					
Q	pH (unfilted units)	00400					
Q	ELEV OF GW SURF (ft ref MSL)	7 1 9 9 3	_				•
Q	DEPTH OF WATER (ft below LS)	<u>7 2 0 1 9</u>					
Α	BTM WELL ELEV (ft ref MSL)	72020			_		
Q	DEPTH TO WATER FR MEA PT (ft)	7 2 1 0 9	_		_		
			_				

IL 532 1213 LPC 160 01/90

This Agency is authorized to require this information under Illinois Revised Statutes, 1979, Chapter 111 ½, Section 1004 and 1021. Disclosure of this information is required. Failure to do so may result in a civil penalty up to \$25,000 for each day the failure continues a fine up to \$1,000.00 and imprisonment up to one year. This form has been approved by the Forms Management Center.

All analytical procedures must be performed in accordance with the methods contained in "Test Methods for Evaluating Solid Wastes, Physical/Chemical Methods," SW-846, 3rd Edition, September 1986 or equivalent methods approved by the Agency. Proper sample chain of custody control and quality assurance/quality control procedures must be maintained in accordance with the facility sampling and analysis plan.

KEY:

Spaces Numbered	Description
Spaces 1-7	Record Code
Space 8	Trans Code
Spaces 9-18	Site ID
Spaces 19-22	Mon Pt ID
Spaces 23-28	Date Collected
Space 29	Lab
Spaces 30-34	STORET Number
Space 35	Remarks
Space 36	Replicate
Space 37	< or >
Space 38-47	Value

^{*}Only Keypunch with Data in Column 35 or Columns 38-47

Renewal RCRA Hazardous Waste Post-Closure Permit

CITGO Lemont Refinery

USEPA ID No: ILD041550567 STATE ID No: 1978030004 Log No: B-162R

ATTACHMENT C-1

Guidance for Conducting a RCRA Facility Investigation

Attachment C-1 Guidance for Conducting a RCRA Facility Investigation

I. PURPOSE

The purpose of the RFI is to determine the nature and extent of releases of hazardous waste or hazardous constituents, if any, from SWMUs located at CITGO and to gather data necessary to develop and implement a Corrective Measures Program (CMP). Specifically, the information gathered during the RFI will be used to help determine the need, scope and design of any corrective or interim actions, including the corrective measures program.

II. SCOPE OF WORK

The Scope of Work for the RFI is to evaluate whether a release has occurred, and to what extent, from the two groups of SWMUs listed in Section IV of the Permit. The scope for the Group 1 and Group 2 SWMUs is divided into two phases - Phases I and II.

- 1. The purpose of Phase I is to provide information on the characteristics and integrity of each unit and conduct field activities, as necessary, to determine if various SWMUs at that facility have released, are currently releasing, or have the potential to release hazardous waste and/or hazardous constituents to the soil and/or surface water.
- 2. Phase II of the RFI will be required if the Illinois EPA's BOL determines from the data obtained in Phase I that for any SWMU (1) a release has occurred to the soil, groundwater, and/or surface water, or (2) a release is occurring to the soil, groundwater, and/or surface water. The purpose of Phase II is to define the nature and extent of releases to any affected media including soil, groundwater, and/or surface water.
- 3. Supplemental investigation may be required if the Illinois EPA's BOL determines from the data obtained in Phase I or Phase II that the nature and extent of hazardous wastes or hazardous constituents has not been adequately characterized in any environmental media including soil, groundwater, or surface water and sediments.

Each phase of the investigation is divided into three subparts. The first subpart deals with the development of a RFI Workplan by the Permittee. The second subpart is the implementation of the RFI. The final subpart covers the submission of reports of activities and results of the RFI.

III. RFI WORKPLANS

CITGO shall prepare detailed workplans that address each phase of the RFI which are reviewed and approved by the Illinois EPA prior to conducting that phase of the RFI. Separate plans will be prepared for the Group 1 and Group 2 SWMUs. The workplan for each phase of the RFI must, at a minimum, contain the information identified in III.A-III.I below. The information in the workplan must be presented in a manner which is similar to the format set forth in these sections. Information provided in each Phase of the RFI may be incorporated into the workplan for the subsequent Phase by reference. Information already submitted in the Part B permit application may also be incorporated by reference into the workplans when appropriate.

The following sections describe what is required in the RFI Workplans for Phase I and Phase II investigations. These phases can be combined into one workplan provided that the requirements of each phase are met.

A. INTRODUCTION (required for all workplans)

A general discussion of the contents and goals of each workplan must be provided as an introductory portion of the workplan. This introduction should also discuss, in general, the facility and the SWMUs being investigated.

B. ADMINISTRATIVE OUTLINE

CITGO shall submit as part of the workplan for each phase of the RFI a general outline defining the RFI objectives, technical approach, and scheduling of tasks during that phase of the RFI. CITGO shall prepare a Project Management Plan (PMP) as part of each Phase Workplan which will include a discussion of the technical approach, schedules, budget, and personnel. The Project Management Plan must also include a description of the qualifications of personnel performing or directing the RFI, including contractor personnel. This plan shall also document the overall management approach to the current Phase of the RFI. The PMP from previous phases can be incorporated by reference into the current workplan provided that any changes or additions to the existing PMP are detailed in a PMP addendum contained within the workplan.

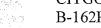
C. RFI APPROACH

Each workplan must describe the investigative approach for the phase and group of SWMUs being investigated under the workplan. The information required includes:

1. The parameters and analytical methods to be used to establish the presence or absence of contamination and define the nature and extent of known releases. These must include,

but are not limited to, specific hazardous constituents of wastes known or suspected to have been managed by the SWMUs as identified and determined by the unit characterization information presented in the workplan.

- 2. The basis for selecting the parameters and methods in (1) above.
- 3. The methodology for choosing sampling locations, depths, and numbers of samples.
- 4. The methodology for investigating the hydrostatigraphic units at site, and the locations and depths for each monitor well, as appropriate.
- 5. The sample collection procedures for each parameter or constituent to be analyzed for each environmental media (soil, sediments, surface water, and groundwater). The following should be considered in developing these procedures:
 - a. Sample collection methods and equipment should follow guidance in Test Methods for Evaluating Solid Wastes, Physical/Chemical Methods, Third Edition (SW-846) including Final Update 1 and any promulgated updates, where appropriate.
 - b. Field sampling methods not included in SW-846 must be approved by IEPA before they are used in the RFI. This includes methods such as drilling, borings, etc. When available, standards procedures, as defined by USEPA, IEPA, or ASTM, should be followed.
 - c. Soil and sediment samples collected for volatile organics analysis require specialized sampling and handling procedures, as specified in the Illinois EPA's volatile organic compound (VOC) sampling procedure. Unless extenuating circumstances dictate otherwise, soil samples collected for volatile organic analysis should not be mixed, composited, or otherwise aerated. If extenuating circumstances prevail, then procedures must be made to minimize (1) the time the sample is exposed to the air; (2) aeration of the sample; and (3) agitation of the sample.
 - d. If a drill rig or other piece of equipment is necessary to collect soil samples:
 - (1) The procedures specified in ASTM Method D-1586 (Split Spoon Sampling) or D-1587 (Shelby Tube Sampling) must be used in collecting the samples;
 - (2) Soil samples should be collected continuously at specified locations to provide information regarding the shallow geology of the area where the investigation is being conducted.



- e. Soil and sediments encountered in an area where VOC contamination is a concern should be field-screened for VOCs. However, the actual samples collected for analysis at the laboratory should not be field-screened.
- f. The procedures which will be used to decontaminate the sampling equipment after each sample is collected should also be described. Decontamination procedures should be carried out in accordance with SW-846.
- g. The actual material placed in the container for future analysis should be obtained from any visually contaminated portion of the sample, when present.
- 6. The sample handling procedures which will be used to store, preserve and transport the collected soil or water samples to the laboratory, including chain-of-custody procedures and preservative techniques. These procedures should be carried out in accordance with the guidance in SW-846, Third Edition, including Final Update 1 and any promulgated updates.
- 7. The analytical procedures which will be used to prepare the samples for analysis and to analyze them. In general, such procedures should be carried out in accordance with those set forth in SW-846, Third Edition including Final Update 1 and any promulgated updates, as appropriate. The actual portion of the sample to be analyzed should be obtained from visually contaminated material if any is present. The procedures specified must be sufficient to analyze for all the parameters identified in the workplan. The estimated quantitation limits and/or practical quantitation limits to be achieved should also be identified. Again, these limits should meet the requirements set forth in SW-846. It must be noted that it is especially important to achieve low detection limits if the goal of the sampling/analysis effort is to demonstrate that little or no contamination exists in a given area. To demonstrate a parameter is not present in a sample, the PQL achieved must be at least as low as that specified in SW-846, where practical. Low detection limits may not be as necessary when collecting samples in contaminated areas.
- 8. The procedures which will be used to describe and characterize the soils in and around the subject SWMUs down to the sampling depth but not below the water table, including the following:
 - a. Unified Soil Classification;
 - b. Soil profile; and
 - c. Elevation of water table.
- 9. Documentation that sampling and analysis of groundwater monitoring wells will be carried out in accordance with the Quality Assurance Project Plan as required in III.G

below. The plan shall provide information on the design and installation of all groundwater monitoring wells. The designs shall be in accordance with the latest version of the RCRA Groundwater Monitoring Draft Technical Guidance (EPA 53OR-93-001), where appropriate, and the latest version of the Illinois EPA's BOL design criteria. At a minimum:

- a. The groundwater monitoring wells must consist of monitoring wells installed in the uppermost aquifer and, as necessary, in each underlying aquifer (e.g., sand units) which is hydraulically interconnected, where appropriate or necessary to characterize the release;
- b. At least one background monitoring well in each appropriate aquifer shall be installed hydraulically upgradient (i.e., in the direction of increasing static head) from the limit of the SWMU, except to the extent that SWMUs in close proximity can be investigated with the same background well system. The number, locations, and depths must be sufficient to yield groundwater samples that are (1) representative of background quality in the uppermost aquifer and units hydraulically interconnected beneath the facility and (2) not affected by SWMUs or other contamination sources at the subject facility; and
- c. Monitoring wells in each appropriate aquifer shall be installed hydraulically downgradient (i.e., in the direction of decreasing static head) from the SWMU or SWMU group. Their number, locations and depths must ensure that they allow for detection of releases of hazardous waste or hazardous constituents from the SWMU(s).
- 10. The procedures and criteria for evaluating analytical results to establish the presence or absence of any plume of contamination and to define the boundaries of the plume of contamination. The release criteria shall be defined in this portion of the plan.

D. SITE-SPECIFIC SAMPLING PLANS

The Permittee shall prepare detailed site-specific sampling plans to be submitted as part of the work for each phase of the RFI which address all field activities needed to obtain site-specific data. The plans must contain: a statement of sampling objectives, specifications of equipment, analyses of interest, sample types, sample locations and schedules for sampling. The plans must describe in detail how the RFI will be implemented.

Site-Specific sampling and analysis plans should contain the following information for each SWMU or SWMU group being investigated:

- 1. <u>Goals and Objectives of Effort</u> A discussion of the goals and objectives of the sampling/analysis effort should be included in the plan for the SWMU. This will have an impact on the overall plan, as the sampling/analysis effort required to demonstrate that an area is clean is very different than that required to determine the horizontal and vertical extent of contamination.
- 2. Parameters and Analytical Procedures A list of proposed parameters and analytical methods along with a discussion justifying their selection for the SWMU should be included in the plan. The proposed parameters should include those hazardous constituents which may be present based upon knowledge of the wastes managed at the unit. This list should include degradation products. Additional parameters for analysis may be required by the Illinois EPA, depending on its review of the wastes and other materials managed at the facility.
- 3. <u>Sample Locations</u> A scaled map should be provided in the plan showing the location where the samples are to be collected.
- 4. <u>Sampling Depth</u> As appropriate, the plan should identify the depth from which each sample is to be collected.
- 5. <u>Sample Collection Procedures</u> The procedures which will be used to collect the samples must be described in the workplan.
- 6. Any additional items regarding the sampling/analysis at a specific SWMU.

E. RFI PHASE I WORKPLAN INFORMATION

The following information must be provided as part of the RFI Phase I Workplans.

1. General Facility Information

The following information must be provided (to the extent known) in the Phase I RFI Workplan regarding the facility overall:

- a. A description of the facility, including the nature of its business, both past and present. This description should identify (1) the size and location of the facility, (2) the raw materials used and products manufactured at the facility and (3) the Standard Industrial Code which describes the type of activities carried out at the facility;
- b. Identification of past and present owners;

- c. A discussion of the facility's past and present operations, including solid and hazardous waste generation, storage, treatment and disposal activities;
- d. A brief discussion of the SWMUs addressed under the workplan;
- e. A description of all significant surface features (ponds, streams, depressions, etc.) and wells within 1,500 feet of the facility;
- f. A description of all land usage within 1,500 feet of the facility boundary;
- g. Identification of all human populations and environmental systems susceptible to contaminant exposure from releases from the SWMUs within a distance of at least 1,500 feet of the facility;
- h. Approximate dates or periods of past spills or releases, identification of material spilled, amount spilled, location, and a description of the response actions, including any inspection reports or technical reports generated as a result of the spill or release.
- i. A current topographic map(s) showing a distance of at least 1,500 feet around the facility and other information described below, and at a scale of one inch equal to not more than 200 feet. Contours shall be shown on the map, with the contour interval being sufficient to clearly show the pattern of surface water flow. If such a map is not available, the workplan shall describe the method for generating the map for inclusion in the Group 1 Phase I/II report, as required to support the RFI. The map shall clearly show the following:
 - (1) Map scale, North arrow, date, and location of facility with respect to Township, Range and Section;
 - (2) Topography and surface drainage depicting all waterways, wetlands, 100-year floodplain, drainage patterns, and surface water areas as related to the SWMUs and the surrounding areas;
 - (3) Property lines, with the owners of all adjacent property clearly indicated;
 - (4) Surrounding land use;
 - (5) Locations and boundaries of (1) all solid waste, including hazardous waste, management units, both past and present, (2) spill areas and (3) other suspected areas of contamination;
 - (6) All injection and withdrawal wells, and

(7) All buildings, tanks, piles, utilities, paved areas, easements, rights-of-way, and other features including all known past and present product and waste underground tanks or piping, as available and applicable to potential releases from the SWMUs.

The map(s) shall be of sufficient detail and accuracy to locate and report all current and future RFI work performed at the site. The base map(s) shall be submitted in the Group 1 Phase I/II report and modified in subsequent reports and workplans as appropriate.

2. Unit Characterization

Phase I Workplans must contain the following information, to the extent known, for each SWMU included in the Group being investigated:

- a. Location of unit/area;
- b. The horizontal and vertical boundaries of each unit/area;
- c. Details regarding the construction, operation and structural integrity of each unit/area;
- d. A description of all materials managed and/or disposed at each SWMU including, but not limited to, solid waste, hazardous wastes, and hazardous constituents to the extent they are known or suspected over the life of the facility including
 - (1) Type of waste or hazardous constituents placed in the units, including source, hazardous classification, quantity and chemical composition;
 - (2) Physical and chemical characteristics, including physical form, physical description, general chemical class, cohesiveness of the waste;
- e. The history of the utilization of each SWMU and the surrounding areas, including the period of operation and age of the unit;
- f. Methods used to close the unit, if applicable;
- g. A description of the existing degree and extent of contamination at each unit area.
- h. Identification of additional information which must be gathered regarding 2.a through 2.g above.



3. Soil Sampling and Analysis Plan

The Sampling and Analysis Plan (SAP), dated March, 2006 developed by the Permittee was approved by Illinois EPA on August 8, 2006 (Log No. B-162-CA-9, 32, 33) with conditions and modifications. This plan was developed to be used as a reference document throughout the corrective action process at the facility. The SAP contains standard procedures for sampling and analysis for soil, groundwater and surface water during investigations. All corrective action investigation shall be conducted in accordance with the SAP and the Illinois EPA's August 8, 2006 approval letter (Log No B-162-CA-9, 32, 33) and subsequent approved plans. As indicated in the August 8, 2006 letter, an individual sampling plan shall be developed for each SWMU during the entire corrective action process; however, the foundation for the workplans shall follow the approve procedures of the SAP. Any modifications to the approved SAP must be submitted to Illinois EPA for review and approval.

4. Surface Water and Sediment Sampling and Analysis Plan

Phase I Workplans must provide for a determination of the presence or absence of releases of hazardous wastes and hazardous constituents into all surface waters or their sediments potentially affected by the facility. The SWMUs requiring surface water and sediment investigations are identified in Condition IV.B.1. The plan should meet the requirements of III.C and III.D and must also include, but is not limited to:

- a. A description and characterization of all potentially affected surface waters, as it is available, including locations, areas, depths, inflows and outflows, volumes of water, seasonal fluctuations, flooding tendencies, drainage patterns, on-site and off-site affected populations and activities.
- b. Descriptions and characterization of sediments associated with all surface waters, as it is available, including deposition areas, thickness profiles, and physical and chemical parameters;

5. Hydrogeologic and Hydrologic Description

The Group 1 Phase I/II Workplan and any other workplans for investigating groundwater must provide descriptions of the hydrogeology and hydrology setting at the facility.

The information which must be provided regarding the hydrogeology and hydrology at the facility includes:

a. Information, as it is available, for the facility overall, regarding:

- (1) The regional geologic and hydrogeologic characteristics in the vicinity of the facility, including stratigraphy, hydrogeologic flow and the areas of recharge and discharge.
- (2) Any topographic or geomorphic features that might influence the groundwater flow system;
- (3) The hydrogeologic properties of all of the hydrogeologic units found at the site down to the first bedrock aquitard, including: hydraulic conductivity and porosity, texture, uniformity and lithology; and interpretation of hydraulic interconnections between saturated zones, and zones of significant fracturing or channeling in the unconsolidated and consolidated deposits;
- (4) Using the facility map as a base, isopach and structural contour maps, and at least two (2) geologic cross sections showing the extent (depth, thickness, lateral extent) of all hydrogeologic units within the facility boundary, down to the first bedrock aquitard, identifying: all units in the unconsolidated and consolidated deposits; zones of higher permeability or lower permeability that might direct or restrict the flow of contaminants; perched aquifers; and the first saturated zone that may have a potential for migration of contaminants;
- (5) The water level or fluid pressure monitoring, including: water level contour maps and vertical gradient sections, well or piezometer hydrographs and interpretation of the flow system, interpretation of any changes in hydraulic gradients, and seasonal fluctuation; and
- (6) Any man-made influences that may affect the hydrogeology of the site, identifying local water supply and production wells and other man-made hydraulic structures within 1500 feet of the facility boundary.
- b. Additional hydrogeologic and hydrologic information may be gathered during the groundwater or SWMU investigations.
- c. A detailed discussion of all previous groundwater monitoring efforts. This discussion must include: (1) scaled maps showing the location of all wells used to collect the monitoring data; (2) construction details of the wells used to collect the monitoring data; (3) a summary of the results of all previous groundwater monitoring efforts; and (4) a detailed evaluation of the collected data

6. Potential Receptors

The Group 1 Phase I workplan must contain data describing the human populations and environmental systems within a radius of 1,500 feet of the facility boundary that may be affected by releases from SWMUs must be collected and submitted. The following characteristics shall be identified.

- a. Local uses and possible future uses of groundwater:
 - (1) Type of use (e.g., municipal or residential drinking water source, industrial, etc.); and
 - (2) Location of groundwater users, including wells and discharge areas.
- b. Local uses and possible future uses of surface waters draining the facility:
 - 1. Domestic and municipal;
 - 2. Recreational;
 - 3. Agricultural;
 - 4. Industrial; and
 - 5. Environmental.
- c. Human use of, or access to, the facility and adjacent lands, including, but not limited to:
 - 1. Recreation;
 - 2. Agriculture; and
 - 3. Residential.

7. Integrity Inspection

The Group 2 RFI Phase I Workplan must provide for an evaluation of the structural integrity of the concrete-asphalt surface of the drum staging areas (SWMUs 1 and 20) and the heat exchanger bundle cleaning pads (SWMUs 10 and 25A-C). These surfaces shall be inspected by an independent registered professional engineer for cracks/joints which penetrate through the concrete/asphalt. The workplan must define the standards and procedures that will be followed when conducting the inspections. The standards and

recommendations of professional/technical entities such as the American Concrete Institute, the Portland Cement Association, the American Society of Testing and Materials, the American Society of Civil Engineers, etc., which relate to the ability of concrete/asphalt to contain liquids should be considered. The results of this inspection shall be (1) submitted in the form of a report, (2) included in the Group 2 RFI Phase I report, and (3) certified in accordance with 35 Ill. Adm. Code 702.126 by the engineer. The reports must include (1) the results of the inspection, (2) scaled drawings showing the location of all cracks and construction joints observed during the investigation, (3) conclusions reached regarding any cracks or construction joints observed in the area of concern, (4) justification for the conclusions reached (e.g., information must be provided which indicates that any construction joints in the areas of concern are indeed watertight), and (5) photographs to support the conclusions reached and recommendations for correction action to prevent releases from the SWMU, as appropriate.

If joints, cracks or other defects are found in the base of any SWMU during the inspection required above which would potentially allow hazardous waste or hazardous constituents to migrate through them, then the Phase I Workplan must provide for the collection of soil samples beneath them to determine if hazardous waste or hazardous constituents have been released to the underlying soil.

- a. Samples should be collected from at least one location along each joint or crack that provides a potential for hazardous waste or hazardous constituents to migrate to underlying soil. Such locations shall be biased to stained areas or low-lying areas where spills would tend to accumulate.
- b. Samples should be collected from 0" 6" below the subgrade/natural soil interface.
- c. Samples must be collected and analyzed in accordance with the procedures set forth in the sampling and Analysis Plan below.

F. RFI PHASE II WORKPLAN INFORMATION

1. Soil Investigation

A Phase II Soil Sampling and Analysis plan, if necessary, must describe procedures to determine the nature and extent of hazardous waste and/or hazardous constituents released to the soil. This plan shall address and/or include, in addition to the plans specified in III.C and III.D:

a. A description of what is known about the horizontal and vertical extent of contamination;

- b. A description of relevant contaminant and environmental chemical properties within the affected source area and plume, including solubility, specification absorption, leachability, exchange capacity biodegradability, hydrolysis, photolysis, oxidation and other factors that might affect contaminant migration and transformation (if known);
- c. Specific contaminant concentrations, if known;
- d. The horizontal and vertical velocity and direction of contaminant movement (if known);
- e. An extrapolation of future contaminant movement (if known); and
- f. The methods and criteria to be used to define the boundaries of the plume(s) of contamination.

2. Sediment and Surface Water Sampling and Analysis Plan

A Phase II RFI sampling and analysis plan to characterize the contamination of surface waters and sediments shall include, at a minimum:

- a. A description of the horizontal and vertical extent of any plumes and the extent of contamination in the underlying sediments (if known);
- b. Specific contaminant concentrations (if known);
- c. The horizontal and vertical direction and velocity of contaminant movement (if known);
- d. An evaluation of the physical, biological and chemical factors influencing contaminant movement (if known);
- e. An extrapolation of future contaminant movement (if known):
- f. The criteria used to define the boundaries of the plume; and
- g. The sampling conditions required under III.C and III.D.
- 3. <u>Hydrogeologic and Geologic Investigation Plan</u> The Phase II hydrogeologic and geologic investigation plan must provide descriptions of groundwater monitoring systems which will provide adequate data on the detection, nature, extent and rate, and concentration of any release from the SWMU to the groundwater at the facility. This

information may be incorporated into the Site-Wide Groundwater Management or other program(s) approved by Illinois EPA.

The information which must be provided regarding the investigation of hydrogeology and hydrology at each SWMU includes:

- a. Information for the individual SWMU or SWMU group, or other approved approach as it is available, regarding:
 - (1) The regional geologic and hydrogeologic characteristics in the vicinity of the facility, including stratigraphy, hydrogeologic flow and the areas of recharge and discharge.
 - (2) Any topographic or geomorphic features that might influence the groundwater flow system;
 - (3) The hydrogeologic properties of all of the hydrogeologic units found at the site down to the first bedrock aquitard, including: hydraulic conductivity and porosity, texture, uniformity and lithology; and interpretation of hydraulic interconnections between saturated zones, and zones of significant fracturing or channeling in the unconsolidated and consolidated deposits;
 - (4) The water level or fluid pressure monitoring, including: water level contour maps and vertical gradient sections, well or piezometer hydrographs and interpretation of the flow system, interpretation of any changes in hydraulic gradients, and seasonal fluctuation; and
 - (5) Any man-made influences that may affect the hydrogeology of the site, identifying local water supply and production wells and other man-made hydraulic structures near a SWMU, SWMU Group, or on a Site-Wide basis.
- b. Procedures for obtaining information identified in III.F.3.a above which was not obtained during preparation of the workplan, as required to characterize the release at the SWMU.
- c. A description of the extent of contamination in groundwater associated with a release from the SWMU, including:
 - (1) A description of the known horizontal and vertical extent of the contamination;

- (2) Specific contaminant concentrations, if known;
- (3) The horizontal and vertical velocity and direction of contaminant movement, if known; and
- (4) An extrapolation of future contaminant movement.
- d. A sampling plan which follows III.C and III.D.

G. DATA COLLECTION QUALITY ASSURANCE

Quality Assurance Project Plan (QAPP), dated March, 2006 developed by the Permittee was approved by Illinois EPA on August 8, 2006 (Log No. B-162-CA-9, 32, 33) with conditions and modifications. This plan was developed to be used as a reference document throughout the corrective action process at the facility. The QAPP contains standard procedures for the quality assurance plan during soil and groundwater sampling and analysis. All quality assurance of soil and groundwater sampling and analysis during corrective action investigation shall be conducted in accordance with the QAPP and the Illinois EPA's August 8, 2006 approval letter (Log No B-162-CA-9, 32, 33) and subsequent approved plans. Any modifications to the approved QAPP must be submitted to Illinois EPA for review and approval.

H. DATA MANAGEMENT PLAN

The Permittee shall develop and initiate a Data Management Plan to document and track investigation data and results. This Plan shall identify and set up data documentation materials and procedures, project file requirements, and project related progress reporting procedures and documents. The Plan shall also provide the format to be used to present the raw data and conclusions of the investigation(s). This plan shall be submitted with the Group 1 Phase I/II Workplan or other workplan as appropriate. The Data Management Plan can be incorporated by reference in subsequent workplans and changes shall be made as necessary through addendums to the original plan.

I. HEALTH AND SAFETY PLAN

Under the provisions of 29 CFR 1910 (54 FR 9,295, March 6, 1989), cleanup operations must meet the applicable requirements of OSHA's Hazardous Waste Operations and Emergency Response standard. These requirements include hazard communication, medical surveillance, health and safety programs, air monitoring, decontamination and training. General site workers engaged in activities that expose or potentially expose

them to hazardous substances must receive a minimum of 40 hours of safety and health training off site plus a minimum of three days of actual field experience under the direct supervision of a trained experienced supervisor. Managers and supervisors at the cleanup site must have at least an additional eight hours of specialized training on managing hazardous waste operations. These requirements must be met during each phase of the RFI. A detailed Health and Safety Plan (HSP) demonstrating that his requirement is met must be contained in the workplan for each phase of the RFI. The HSP from previous phases can be incorporated by reference into the current workplan provided that any changes or additions to the existing HSP are detailed in an addendum contained within the workplan.

J. <u>IMPLEMENTATION OF RFI</u>

The Permittee shall conduct those investigations necessary to characterize the site, and to determine the nature, rate and extent of migration, and concentrations of hazardous waste and hazardous constituents, if any, released from the SWMUs into the surface water and sediments, groundwater, and soil. The investigations must be of adequate technical content to support the development and evaluation of a corrective measures program, if one is deemed necessary by the Illinois EPA's BOL.

The investigation activities shall follow the plans and procedures set forth in the Workplan(s) and the RFI schedule. Any actual or anticipated deviations from the Workplan(s) or the RFI schedule shall be reported no later than the time of submission of the next quarterly report required by Section V subsequent to the determination of need or actual deviation from the Workplan.

K SUBMISSION OF REPORTS OF RFI ACTIVITIES

The Permittee must prepare and submit workplans and reports which must be submitted to the Illinois EPA for review and approval in accordance with the schedule set forth in the following table. Any progress report to summarize overall corrective action program at the facility must be submitted by CITGO upon Illinois EPA's request:

Facility Action Completion of Group 1 or 2 RFI Phase I/II investigation and submission of report	Due Date Within time frame established in the Phase I/II Workplan, subject to Illinois EPA's approval.
Submission of RFI Phase II Workplans	Within 90 days of notification that Phase II is required.
Completion of RFI Phase II investigation and submission of Phase II Report	Within time frame established in the Phase II workplan subject to Illinois EPA's approval.
Submission of Supplemental Investigation Workplan	Within 90 days of notification that supplemental investigation is required.
Completion of supplemental Investigation and Submission of Report and Summary	To be specified in the supplemental investigation workplan subject to approval by Illinois EPA.
Annual RCRA Sewer Inspection and Maintenance Report	March 31 of each following
Corrective Action Progress Report	Upon Illinois EPA's request and to be specified by Illinois EPA.

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Renewal RCRA Hazardous Waste Post-Closure Permit

CITGO Lemont Refinery

USEPA ID No: ILD041550567 STATE ID No: 1978030004 Log No: B-162R

ATTACHMENT C-2

Summary of Illinois EPA Letters Regarding Corrective Action

Attachment C-2

Summary of Illinois EPA Letters Regarding Corrective Action and CITGO's Submittals to Illinois EPA Under Review

(Updated March 2011)

I. Chronological Summary of Illinois EPA Letters Regarding Corrective Action

IEPA Letter		
Dates & Log No.	Description of Submittal	IEPA Action Taken
9/18/97	Application for RCRA Post-Closure	Issued a RCRA permit for closure and
B-162	Permit.	post-closure care of four land
	•	treatment units. Permit also required
		facility to conduct corrective action at
		34 SWMUs. Permit broke SWMUs
		down to two groups, with Group 1
		being those SWMUs, with a known release or highest potential risk to
		human health and the environment,
		which are to be addressed first then
		the Group II SWMUs. A list of
		SWMUs is provided in Attachment 1;
		a drawing showing the locations of
		the SWMUs and 4 land treatment
		units is provided in Attachment 2.
10/22/98	A request to modify the GMZ	Approved request (the GMZ is also
B-162-M-11	beneath and around the stormwater	identified as SWMU 33).
	basin (this GMZ is also identified as	
	SWMU 33). The requirements for	
	the GMZ were initially contained in	•
	Conditions IV.B.1.a of the RCRA	
	Permit.	
11/28/00	Closure by removal demonstration	Disapproved request; required further
B-162-M-1	at the wastewater treatment sludge	soil investigation be conducted at this
	decant Basin (a surface	unit.
	impoundment) which had	
	previously been closed under IEPA	
	approved plan (Log No. C-193).	
	This is also referred to as SWMU	
	15C; required by Condition I.C of the RCRA permit.	
	the Reich permit.	

IEPA Letter	5	
Dates & Log No.	Description of Submittal	IEPA Action Taken
5/14/01 B-162-M-1	A workplan for soil investigation at SWMU 15C as part of closure by removal demonstration required by Condition I.C of the permit; follow-up to our 11/28/00 letter (see above).	Approved with conditions and modifications.
10/9/01 B-162-CA-1 B-162-CA-2 B-162-CA-3	Following documents were included in this submittal: a. Group I RFI Phase I/II Workplan b. Sewer Inspection and Maintenance Work Plan c. Streamlined Corrective Action Workplan	All three documents were disapproved.
11/14/01 B-162-M-1	A soil investigation report for SWMU 15C, submitted as part of the closure by removal demonstration required by Condition I.C of the Permit. Follow-up to our 5/14/01 letter.	Approved report with conditions; required the facility to remove the "ashy/silty" materials from the unit.
9/27/02 B-162-M-1	Final closure by removal demonstration document for SWMU 15C, as required by Condition I.C of the permit. It contained soil investigation results and soil excavation report; follow-up to our 11/14/01 letter.	Approved a closure by removal demonstration for a former surface impoundment as known as SWMU 15C.
2/21/03 B-162-CA-4 (1)	Sewer Inspection and Maintenance Work Plan (B-162-CA-2), submitted in May 1998.	Approved plan as a follow-up to IEPA's 10/9/01 letter.
4/9/03 B-162-CA-4 (2)	The submittal, received on 1/17/02, consisted of: -Workplan for Streamlined RCRA Corrective Action; -Results of Site-Wide Groundwater Investigation; and -Workplan and Procedures: Streamline Corrective Action	IEPA's response included concerns and requirements that need to be addressed prior to establishing the revised process for carrying out corrective action program at facility.

IEPA Letter		
Dates & Log No.	Description of Submittal	IEPA Action Taken
1/28/04 B-162-CA-6 B-162-CA-7	Submittals included: Site-Wide Groundwater Monitoring Report (9/03); Workplan for Streamlined RCRA Corrective Action (10/03); Letter dated 1/8/04- request to withdraw the 10/03 streamlined workplan.	Approved the Site-Wide Groundwater Monitoring Report with conditions to conduct additional groundwater investigation at the site. Indicated the streamlined plan was withdrawn and as discussed in 12/03 meeting, a revised Streamline CA Workplan is to be submitted to IEPA by 1/31/04.
6/1/04 B-162-CA-11	A 1/30/04 report entitled <u>SWMU-1</u> <u>Soil Investigation</u> , <u>Streamline</u> <u>Corrective Action Program</u> and supplemental information, dated 5/6/04.	Approved a report documenting that no further action was necessary to address SWMU 1 (Former Empty Drum Storage Area).
10/4/04 B-162-CA-9 B-169-CA-10	Submittal contained following documents: Work Plan for Site-Wide Groundwater Monitoring (rec'd on 2/2/04); Workplan for Evaluation of GW Conditions at I&M Canal (rec'd on 3/30/04); Sewer Inspection—Annual Report (rec'd on 3/30/04); RCRA Streamlined Category A SWMU Work Plans (rec'd on 3/30/04) for SWMUs 2a-e, 3, 16, 17, 19b, 24, 31a, and 31b-e.	-Accepted the Sewer Inspection annual report. -Approved the Workplan for Category A SWMUs with conditions and modifications and focused mainly on soil investigation only. -Required additional groundwater corrective action activities, a report for evaluation of I&M canal, and additional information regarding groundwater monitoring wells are required in this letter.
1/6/05 B-162-CA-5	A workplan entitled <u>SWMU 43j</u> : <u>Pipeline release Located Near Tanks 92 and 108</u> , which included a soil sampling plan for SWMU 43j (rec'd on 12/14/04).	Approved workplan with conditions and modifications.

IEPA Letter			
Dates & Log No.	Description of Submittal	IEPA Action Taken	
3/23/05 B-162-CA-12	A groundwater report entitled, Field Investigation Report: Evaluation of Groundwater Conditions at the I&M Canal, rec'd on 11/23/05. CITGO proposed natural attenuation to address the groundwater contaminations at the site.	Disapproved report; required CITGO to submit a plan to address groundwater in I&M Canal within 60 days (this date was eventually extended by additional 60 days as a result of a 5/19/05 meeting between IEPA and CITGO).	
8/24/05 B-162-CA-13 &15-22	Submittals rec'd on 3/31/05 contained Category A SWMU investigation Reports for the following SWMUs: SWMUs 2a-e, 3, 16, 17, 19b, 24, 31a, 31b-e, and 43j (workplan for this effort had been approved on 10/4/04).	Approved the reports. Additional work is necessary at each SWMU.	
10/21/05 B-162-CA-23	Site Wide Groundwater Monitoring Report, rec'd on 6/20/05, was submitted to address groundwater concern discussed during a meeting between IEPA and CITGO on 6/19/05.	Approved the report with conditions and modifications. IEPA required CITGO to submit additional information regarding its background and details on the remediation options.	
11/30/05 B-162-CA-9	Work Plan for Streamlined Corrective Action, rec'd on 2/3/04 and related draft <i>revised</i> workplan, rec'd via e-mail on 3/1/05 & 5/13/05.	Disapproved. CITGO is required to submit either a revised CA workplan or a Phase I/II RFI Workplan for all Group I SWMUs in accordance with the RCRA Permit by 1/31/05.	
1/31/06 B-162-CA-25	Phase II RFI Workplan for SWMUs 2A-E received on 11/28/05.	Approved. CITGO's plan to monitor this unit for 12-mo and to submit a report of the monitoring after 12-mo. No further investigation is necessary regarding soil at these units.	

IEPA Letter		
Dates & Log No.	Description of Submittal	IEPA Action Taken
2/27/06 B-162-CA-1 & 8	• CITGO's 1/14/04 letter regarding Disposal of Storm Water Basin (SWB) Material, rec'd on 1/16/04.	Approved an extension request and required CITGO to submit a Phase I/II RFI Workplan for Group I SWMUs by March 31, 2006.
	• CITGO's 7/12/05 submittal entitled, Withdrawal of January 14, 2004 Proposal Regarding Storm Water Basin (SWB) Material at the Land Treatment Facility (LTF) and Notice of Plan for Final Grading of SWB Material at the LTF, rec'd on 7/15/05.	Also approved withdrawal of CITGO's 1/14/04 letter; however, this letter didn't not address any other content of the 7/12/05 submittal. Rob Watson (RCRA Unit) to respond to final grading plan in 7/15/05 submittal.
	• CITGO's 12/8/05 letter to request an extension for submittal of a Phase I/II RFI Workplan for Group I SWMUs, rec'd on 11/18/05.	
2/27/06 B-162-CA-27 thru 30	Phase II RFI Workplans for following SWMUs: SWMU 17, SWMU 19B, SWMU 31A, and SWMU 43J, rec'd on 11/28/05.	Approved Phase II Workplans for the four SWMUs with conditions and modifications. Acknowledgement that a revised SAP and QAPP will be submitted in the near future. Any future CA activities will be conducted in accordance with the facility's RCRA permit.
4/3/06 B-162-CA-26	Phase II RFI Workplan for SWMU 16 (Former Sludge Application Area).	Approved the Phase II RFI workplan for SWMU 16 with conditions and modifications. It required to address arsenic contamination and to submit a report by September 1, 2006.
5/8/06 B-162-CA-31	2006 Groundwater Monitoring and Investigation Work Plan, dated 1/30/06 (rec'd on 2/1/06). This submittal replaced Groundwater CA Workplan was received on 7/19/05 (B-162-CA-24).	Approved the groundwater investigation work plan with conditions and modifications. Additional information is required to be submitted within 30 days.

IEPA Letter Dates & Log No.	Description of Submittal	IEPA Action Taken
6/8/06 B-162-CA-14& 34	2004 RCRA Sewer Investigation Annual Report, dated 3/30/06 (rec'd on 4/1/05), and 2005 RCRA Sewer Investigation Report, dated 3/24/06 (rec'd on 3/27/06).	Approved with conditions and modifications. Additional information, such as maps, information regarding ratings and investigative schedule to be submitted within 75 days
7/17/06 B-162-CA-35 thru 47	Phase I/II RFI Workplans for the following 13 SWMUs, dated 3/30/06: 4, 7, 11A, 11B, 12, 19D, 21, 30, 32, 33, 34, 36, and 37.	Approved with several conditions and modifications. No further corrective action was required for the following SWMUs: SWMU 36 and SWMU 37.
8/8/2006 B-162-CA-9 (CCR), -32 (QAPP), -33 (SAP)	(1) Quality Assurance Project Plan (QAPP), dated 3/22/06; (2) Sampling and Analysis Plan (SAP), dated 3/22/06; and (3) Current Conditions Report (CCR), dated 1/30/04.	Approved with conditions and modifications. Illinois EPA required standard procedures for the sampling and analysis program unless otherwise specifically proposed in an individual workplan for each SWMU.
10/4/06 B-162-CA-48, 49 &50	(1) Modification to Interim 2006 Site-wide Groundwater monitoring and Investigation workplan – Free Phase Hydrocarbon Procedures, dated 6/1/06; (2) Response to Comment #1, dated 6/1/06; (3) Amended request to Groundwater Work Plan: Groundwater monitoring and Investigation workplan, dated 8/4/06; and (4) Response to Comment #7 – Sampling Schedule, dated 6/1/06.	Approved with conditions and modifications. A few modifications to proposed FPH recovery and monitoring are made by Illinois EPA.
11/27/06 B-162-CA-52	Phase II RFI Report for Former Sludge Application Area (SWMU 16), dated 8/30/06.	No further corrective action was required for SWMU 16.
1/17/07 B-162	CITGO's letter entitled Monitoring Well/Piezometer Abandonment (P-16,PB-MW-4 & FR-MW-5), dated 8/11/06.	Approved abandonment of P-16,PB-MW-4 & FR-MW-5. Additional submittal regarding the three wells is requested.

IEPA Letter	Description of Cubarity	TEDA A -45 Teller
Dates & Log No. 1/17/07 B-162-CA-51	Response to Comments on 2004 and 2005 RCRA Sewer Investigation Annual Reports, dated 8/18/06.	Additional information to the 2004 & 2005 Annual Sewers Reports are approved with conditions and modifications.
4/12/07 B-162-CA-55&61	Phase I RFI Report for Spill at Hot Oil Line (SWMU 4) and Vertical Oil Storage Tank (SWMU 21), both dated 1/30/07.	An ELUC must be placed for SWM 21 to restrict land use for Ind/Comm. No further action is required for SWMU 4.
5/17/07 B-162-CA-53	"Re-Evaluation of Groundwater Management Zone", received on 10/3/06.	Approved with conditions and modifications.
5/31/07 B-162-CA-54&66	"Stepped Flow Rate Pump" and "Site-wide Groundwater monitoring and Investigation Workplan", received on 11/29/06 and 2/6/07, respectively.	Approved with conditions and modifications.
6/13/07 B-162-CA-56 thru 60, 62, 63, 64	Phase I RFI Reports for the following SWMUs: 7, 11A, 11B, 12, 19D, 30, 34, 2 a-e (all but SWMU 2 report were submitted on 1/30/07; SWMU report was submitted on 2/28/07).	Phase II workplans and groundwater remedial plan for SWMU 2 must be submitted within 90 days.
12/6/07 B-162-CA-73 thru 84	Phase I RFI Workplans for the following SWMUs: 5, 10, 13, 15A/15B, 18&19A, 19C, 20, 25A, 25B, 25C, 35, and 44.	The twelve-workplans were approved with conditions and modifications.
12/17/07 B-162-CA-67	2006 RCRA Sewer Investigation Annual Report was submitted and was received on march 28, 2007 and October 5, 2007 (CA certification form).	The annual report was approved with conditions and modification.
12/17/07 B-162-CA-69 thru 72	Phase II RFI Report for the following SWMUs: 17, 19B, 31A, and 43J (received on May 16, 2007).	Approved Phase II Report for the 4 SWMUs with conditions and modifications.

IEPA Letter		
Dates & Log No.	Description of Submittal	IEPA Action Taken
B-162-CA-85 1/28/08	(1) Preliminary GRW-2 and GRW-2 Effectiveness Report, dated 07/06/07; and (2) Response to Comment 2C (CA-54 & 66), dated 8/1/07.	Approved with conditions. No groundwater investigation is necessary at SWMUs 36 & 37. No replacement wells are necessary at SWMU 32. Replacement wells are approved at SWMU 30, 31A-E.
2/20/08 B-162-CA-65&88	Soil Investigation of Year 2 defects (1/31/07), Re-examination of Sewer Defects/Soil Locations (9/4/07) and Soil Investigation of Year 3 and Remaining Year 2 Defects (10/17/07).	Approved with conditions and modifications.
4/25/08 B-162-CA-86	September 10, 2007 submittal (rec'd 9/13/07) regarding following SWMUs: 7, 11A&B, 12, 19D. 30, 34, and 2a-e.	Approved with conditions and modifications. This submittal included CM Plan for 19D.
4/25/08 B-162-CA-90	Multiple Step Pump Test (8/28/07) (rec'd 8/30/07) was submitted to further evaluate the pilot testing of hydraulic controls at GQ-MW-2A.	Approved with conditions and modifications. The facility is required to submit a report upon the completion of the pilot testing.
8/1/08 B-162-CA-91	CITGO's March 14, 2008 submittal (rec'd on 3/18/08) addressed CA activities at the following SWMs: 17, 19B, 31A, and 43J. This submittal was sent in response to IEPA's 12/17/07 letter (CA-69-72).	Approved with conditions and modifications. Workplan for SWMU 19B and an extension of submitting a workplan for SWMU 43J are approved.
12/18/08 B-162-CA-114	A corrective measure completion report for SWMU 19D Former sludge Drying Area, received on 10/31/08.	Approved NFA with condition that migration to groundwater exposure route is addressed through GMZ and that ELUC will have to be eventually placed for industrial land use in the area.
1/13/09 B-162-CA-92	2007 Annual Sewer Investigation Report	Approved with conditions and modifications.

IEPA Letter			
	Dates & Log No.	Description of Submittal	IEPA Action Taken
	3/12/09 B-162-CA-93 thru 97	Phase II RFI Workplan for SWMUs 38a, 38b, 38c, 39a, and 39b (RCRA sewer investigation – soil investigation)	Approved with conditions and modifications.
	B-162-CA-100 and 119 No letter Issued (5/28/09 memo to BOL File)	-An extension request for the 4 required submittals included in the IEPA's 4/25/08 letter (Log No. B-162-CA-86)Summary of Conference Call from 11/19/2008.	-Extension request was approved prior to the submittal of letter - Summary was informational purpose only.
	6/5/09 B-162-CA-101	Corrective Measures Plan (CMP) for SWMU43J	Approved with conditions and modifications
	6/16/09 B-162-CA- 116,117, 118	Addressed: (1) Group 2 Phase I Report for: SWMU 25A, (2) Phase II & Closure Report for SWMU 34, and (3)CM Plan for SWMU 12	Approved with conditions and modifications
	9/16/09 B-162-CA-115	Proposed gauging and re-sampling Sumps 2c and 2e utilizing low-flow sampling technique.	Approved with conditions and modifications
	12/21/09 B-162-CA-121	2008 RCRA Annual Sewer Investigation Report, which addressed West Tank Farm (Areas 3 and 5) and North Plant (Areas 4b and 2).	Approved with conditions and modifications.
	2/1/10 B-162-CA-135	CITGO's 12/16/09 letter, proposing to abandon five flush mounted piezometers (PZ-4, PZ-5, PZ-7, PZ-8 and PZ-9)	Approved with conditions and modifications.
	2/24/10 B-162-CA-129	SWMU 43J CM Completion report.	Approved with conditions and modifications.
	3/15/10 B-162-CA-127	SWMU 38A Investigation report.	Approved with conditions and modifications.

IEPA Letter				
Dates & Log No.	Description of Submittal	IEPA Action Taken		
4/26/10 B-162-CA-102	Current Conditions Report and Proposed workplan for Future Groundwater Management, Lemont Refinery, Illinois	Approved with conditions and modifications.		
7/8/10 B-162-CA-139	Phase II RFI and Closure report for SWMU 38a- Process Sewer Line Segment at 31-MH8-DP01 to 31- MH8-DP-02	Approved with conditions and modifications. Tier 2 evaluations for construction worker Inhalation ROs were approved.		
7/14/10* B-162-CA-133	Proposal for additional sampling at SWMU 7 to delineate lead	This proposal for additional investigation was approved prior to		
*IEPA Memo to BOL File	contamination found in the area.	the submittal of the letter.		
7/29/10 B-162-CA-142	Notification of a newly discovered SWMU (SWMU 45-Contaminated Fill Area)	Approved the proposal to submit a RFI workplan by 8/31/10 for this new SWMU.		
10/4/10	- Revised CMP for SWMU 12	NFR was issued for SWMU 38b with		
B-162-CA-126, 128	- Investigation report for SWMUs 38b, and 38c.	ELUC for I/C use. NFA on soil was required for SWMUs 12 and 38c. However, groundwater must be investigated for SWMUs 12 and 38c.		
11/04/10 B-162-CA-103 thru 113	Group 2 Phase I RFI Reports for the following SWMUs: 5,10, 13, 15A/B, 18&19A, 19C, 20 25B, 25C, 35 and 44	NFR was issued for SWMUs 5, 25C, and 35with ELUC for I/C use. Phase II RFI was required for SWMUs 10, 13, 15A/B, 18 & 19A, and 19C, 20, 25B and 44.		

II. Summary of CITGO's Submittals to Illinois EPA Under Review

Log No. & Rec'd	
Date	Description of Submittal
B-162-CA-98 5/23/08	Draft ELUC for SWMU 31A. May 2008 submittal supersedes March 2008 submittal.
B-162-CA-99 5/28/2008	Draft ELUC for SWMUs 31 B-E. May 2008 submittal supersedes Oct 2007 submittal (B-162-CA-87)
B-162-CA-120 3/16/09	Soils Investigation Report for 2007 Sewer Defects
B-162-CA-122 4/17/09	RFI Phase I reports for SWMUs 43A thru I.
B-162-CA-123 4/17/09	RFI Phase II report for SWMU 11A
B-162-CA-124 4/17/09	RFI Phase II report for SWMU 11B
B-162-CA-125 8/4/09	CMP for SWMU 30
B-162-CA-130 11/13/09	CM completion report for SWMU 19b
B-162-CA-131 11/30/09	CM completion report for SWMU 39a
B-162-CA-132 11/30/09	CM completion report for SWMU 39b
B-162-CA-134 11/23/09	Supplemental SWMU 2a-e investigation report.
B-162-CA-136 1/6/10	Soils Investigation Report for 2008 Sewer Defects
B-162-CA-137 3/31/10	2009 RCRA Sewer Investigation Annual Report

Log No. & Rec'd	
Date	Description of Submittal
B-162-CA-138 4/8/10	Revised Tier 2 proposal for SWMU 34 in response to IEPA's April 25, 2008 letter (Log No. B-162-CA-86).
B-162-CA-140 6/1/10	Defect Release Determination Soil Screening Assessment Work Plan for SWMUs 38, 39, and 40.
B-162-CA-141 6/7/10	Phase I RFI and Closure Report for SWMU 38D (Process Sewer Line segment: 52-LF51-DP-01 TO 52-MH34-DP-01)
B-162-CA-144 8/31/10	SWMU Assessment Report for SWMU 45.
B-162-CA-145 9/27/10	Site-Wide Groundwater Management Program Proposed Workplan
B-162-CA-146 10/25/10	Phase II RFI and Supplemental Investigation Report for SWMU 7
B-162-CA-147 1/18/11	Request to removed manganese for GW Monitoring Parameter List
B-162-CA-148 2/7/11	Soil Investigation Report for 2009 Sewer Defects
B-162-CA-149 3/14/11	Phase II RFI Report for SWMU 10
B-162-CA-150 3/14/11	Phase II RFI Report for SWMU 20
B-162-CA-151 3/14/11	Phase II RFI Report for SWMU 25A

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Renewal RCRA Hazardous Waste Post-Closure Permit

CITGO Lemont Refinery

USEPA ID No: ILD041550567 STATE ID No: 1978030004 Log No: B-162R

ATTACHMENT D

Corrective Measures Program Overview

Attachment D Corrective Measures Program Overview

1.0 Introduction

In accordance with Section 3004 of RCRA and 35 IAC 724.201, CITGO must institute such corrective action necessary to protect human health and the environment from all releases of hazardous wastes, or hazardous constituents listed in the modified Skinner List of constituents provided in the approved Permit Renewal Application from any Solid Waste Management Unit (SWMU) at its facility. This is accomplished by:

- 1. Conducting a RCRA Facility Investigation (RFI) to determine whether releases of hazardous wastes and hazardous constituents have occurred from any Solid Waste Management Unit (SWMU) at the subject facility, and, if so, the nature and extent of the release; and
- 2. Based on the results of the RFI, developing and implementing a Corrective Measures Program which describes the necessary corrective actions which will be taken. The required corrective actions shall be those actions necessary to protect human health and the environment from all releases of hazardous wastes, or hazardous constituents, listed in the Modified Skinner List of constituents provided in the approved Permit Renewal Application from any SWMUs above site-specific cleanup objectives.

The purpose of this document is to describe the steps in developing and implementing the Corrective Measures Program (CMP). To allow for a logical and orderly progression in developing and implementing necessary corrective action at SWMUs, the Corrective Measures Program should be carried out in five phases.

- 1. Phase I should consist of (1) development of final cleanup objectives, (2) discussion of those SWMUs requiring corrective measures and (3) a preliminary evaluation of the corrective action alternatives available for each SWMU requiring corrective action.
- 2. Phase II should consist of development of a conceptual design of the corrective action chosen for each SWMU including remedial system(s) and/or institutional controls.
- 3. Phase III should consist of development and submission of the final design plans for the corrective action, including operation/maintenance plans and plans for the actual installation of the desired correction action.
- 4. Phase IV is the actual construction/installation of the selected corrective measure.

5. Phase V CMP is operation, maintenance, and monitoring of the selected corrective action to ensure it is properly protecting human health and the environment.

Workplans, reports, etc. will have to be developed as part of the efforts associated with each phase. All such documents will be subject to Illinois EPA review and approval. Details associated with each phase and the development of workplans, reports, etc. required for each phase is provided below.

2.0 Phase I of the CMP

In the initial phase of the Corrective Measures Program, the Permittee should (1) develop cleanup objectives for the SWMUs being investigated, and then (2) identify those SWMUs requiring corrective action. If it should be determined that a specific SWMU, or group of SWMUs, require corrective action, then the Permittee should identify, in general, types of remedial technologies or institutional controls which may be instituted to address and/or stabilize residual contamination, and identify the goals of the corrective measures. All of these efforts should be documented in the form of a Phase I Corrective Measures Report which includes the following:

- 1. <u>Proposed Final Soil Clean-up Objectives</u>. Final soil cleanup objectives will determine the need for and extent of soil remediation (soil corrective measures) at each SWMU investigated.
 - a. The procedures utilized to develop the final soil cleanup objectives must take into consideration, as appropriate:
 - i. The volume and physical and chemical characteristics of the contaminants of concern;
 - ii. The effectiveness and reliability of containment, confinement and collection systems and structures in preventing contaminant migration;
 - iii. The hydrologic characteristics of the unit and the surrounding area, including the topography of the land around the unit;
 - iv. The patterns of precipitation in the region;
 - v. The existing quality of surface soils, including other sources and their cumulative impacts on surface soils;
 - vi. The potential for contaminant migration and impact to the underlying groundwater;

- vii. The land use patterns around the facility;
- viii. The potential for health risks caused by human exposure to the waste constituents; and
- ix. The potential for damage to domestic animals, wildlife, food chains, crops, vegetation, and physical structures caused by exposure to waste constituents.
- b. The Permittee and the Illinois EPA should have a meeting prior to the time that the Permittee begins developing these objectives. The goal of this meeting will be to provide the Permittee with guidance regarding the procedure which should be followed in developing and proposing these final cleanup levels.
- c. The Illinois EPA will establish final cleanup levels if none are proposed by the Permittee.
- d. All remedial objectives must be developed in accordance with 35 Ill. Adm. Code 742 (TACO). Any other methods used to develop remedial objectives for this project must be approved by the Illinois EPA.
- e. Final Illinois EPA action taken on the development of and establishment of these final soil cleanup levels will be subject to the appeal provisions of Section 39(a) of the Illinois Environmental Protection Act.
- f. For certain SWMUs, it may not be appropriate to establish final soil cleanup levels. This will be the case for those SWMUs where the selected corrective action is capping of the area followed by long-term monitoring of groundwater.
- 2. <u>Final Groundwater Corrective Measures Objectives.</u> Final corrective measures or cleanup groundwater objectives will determine the need for and extent of groundwater remediation (groundwater corrective measures). The procedures used in the development of these objectives must be in general accordance with the procedures described above for final soil cleanup objectives and must also meet the requirements set forth in 35 IAC 620.
 - a. The Permittee and the Illinois EPA should have a meeting prior to the time that the Permittee begins developing these objectives. The goal of this meeting will be to provide the Permittee with guidance regarding the procedure which should be followed in developing and proposing these final groundwater cleanup objectives;
 - b. The Illinois EPA will establish final cleanup levels if none are proposed by the Permittee.



- c. Final Illinois EPA action taken on the development of an establishment of these final objectives will be subject to the appeal provisions of Section 39(a) of the Illinois Environmental Protection Act.
- 3. <u>Evaluation of Need for Corrective Action</u> The need for corrective action at each SWMU should be evaluated, based upon a comparison of the proposed clean-up objectives to the results of the RFI.
- 4. <u>Potential Corrective Measures</u> The report should contain a general discussion of the possible corrective measures which may be taken at SWMUs where it is determined that some type of corrective measure is necessary. More detailed information of such measures should be provided if the selected corrective measure has an impact on the development of the clean-up objectives. Also, there must be a discussion of whether the various measures will actually remove the contamination from the environmental media of concern or whether it is some type of institutional control to minimize the potential for future releases from the SWMU. Typically, some type of long-term monitoring is required for corrective measures which employ institutional control.
- 5. <u>Schedule for the Corrective Measures Program</u> The schedule for each Phase of the CMP and the submittals shall be included.
- 6. Ecological Assessment An ecological assessment may be required as part of the Phase I CMP if ecological receptors are identified that would be impacted by the release from the SWMU and if the proposed corrective measures do not address the exposure pathway. The objective of the analysis would be to determine if there will be any adverse impact on the ecology resulting from the proposed cleanup objectives. Ecological assessments may also be required if institutional controls (such as capping, etc.) are the selected corrective measures if the site has ecological receptors. This assessment should be developed in accordance with USEPA guidance. A review of the ecological receptors and the exposure pathways should be included in Phase I of the CMP for each SWMU or SWMU group.

3.0 Phase II of the CMP

Phase II of the CMP includes selection of the corrective measure to be taken and developing a basis for completing the final design of the measure. This effort should be documented in a Conceptual Design Report which describes the proposed corrective measure for each SWMU and provides a conceptual design for these measures. The main criteria for Illinois EPA review is whether the proposed corrective measures are able to achieve the final cleanup objectives established by the Permittee and the Illinois EPA in Phase I of the CMP and/or provide the institutional controls to prevent the migration of contaminants from the SWMU of concern necessary. Based upon a review of the Conceptual Design Report, the Illinois EPA may approve

the corrective measures, require revisions to the proposed corrective measures, or require that a totally new corrective measures proposal be submitted to the Illinois EPA.

The Conceptual Design Report should contain the following sections:

- 1. <u>Introduction/Purpose</u>. The report should include an introductory section which contains: (1) general background information regarding the project; (2) the purpose and goals of the submittal; and (3) the scope of the project.
- 2. <u>Existing Site Conditions</u>. The report should contain a summary of the RFI activities conducted for each of the SWMUs of concern and the results of Phase I of the CMP for each SWMU. RFI investigation analytical results should be provided in tabular form, and maps depicting both the horizontal and vertical extent of contamination at the site should be provided.
- 3. Evaluation for Potential Future Migration. Based on the existing site conditions, a conceptual model of the site should be developed and presented in this report. The potential for additional future migration of contamination for each of the SWMUs of concern must then be evaluated, especially those SWMUs which have been determined to have released hazardous waste/hazardous constituents to the groundwater. It may be helpful to develop conceptual models for contaminant migration. Of special concern in this evaluation are (1) the physical properties of the contaminants (solubility, volatility, mobility, etc.) and (2) existing site conditions (types of soil present, location of contamination, hydrology, geology, etc.).
- 4. <u>Corrective Measures Objectives</u>. The report should discuss the general objectives of the proposed corrective measures to be constructed/installed for each SWMU at the subject facility, and the ability of the proposed corrective measures to achieve the established Corrective Measures cleanup objectives.
- 5. <u>Identification of Options Available</u>. The report should contain a discussion of the various options available to achieve the corrective measures objectives for each SWMU. This discussion should identify: (1) a general overview of each option available, including how the option will achieve the stated objective; (2) the advantages associated with each option; (3) the disadvantages associated with each option and (4) an estimate of the cost associated with choosing each option as the corrective measure.
- 6. <u>Description of Selected Corrective Measure</u>. The report should contain a qualitative discussion of the corrective measure chosen, along with the rationale which was used to select this measure from all those identified initially. This discussion should include documentation that the selected correction measure will be effective.

- 7. <u>Identification of Design Criteria</u>. The report should identify what information must be available to design the selected corrective measure.
- 8. Review of Available Information. The report should contain an evaluation of the existing information to ensure that sufficient information is available to complete the design of the selected corrective measure. If insufficient information is available, then the report should contain procedures for collecting the required information. The level of detail required for this additional data collection should be similar to that provided in RFI workplans.
- 9. <u>Procedures for Completing the Design</u>. The report should contain a description of the procedures which will be followed to complete the design of the corrective measure. This should include as appropriate:
 - a. Identification of the references and established guidance which will be used in designing the selected corrective measure. Justification for the selection of this procedure should also be provided.
 - b. A description of the procedures which will be used to complete the design of the corrective measure.
 - c. Identification of assumptions to be used in the design, and the impact these assumptions have on the overall corrective measure;
 - d. Significant data to be used in the design effort;
 - e. Identification and discussion of the major equations to be used in the design effort (including a reference to the source of the equations);
 - f. Sample calculations to be used in the design effort;
 - g. Conceptual process/schematic diagrams;
 - h. A site plan showing a preliminary layout of the selected corrective measure;
 - i. Tables giving preliminary mass balances;
 - j. Site safety and security provisions.

The information presented herein will form the continuing technical basis for the detailed design of the system and the preparation of construction plans and specifications.

- 10. <u>Identification of Required Permits</u>. The report should identify and describe any necessary permits associated with the selected corrective measure, as well as the procedures which will be used to obtain these permits.
- 11. <u>Long-lead Procurement Considerations</u>. The report should identify any elements/components of the selected corrective measure which will require a large amount of time to obtain/install. The following issues should also be discussed: (1) the reason why it will take a large amount of time to obtain/install the item; (2) the length of time necessary for procurement and (3) recognized sources of such items.
- 12. <u>Project Management</u>. The report should contain information regarding the tasks and personnel which will be involved in completing the design of the selected corrective measure. A schedule for completing the design should also be provided.

4.0 Phase III of the CMP

Once the Illinois EPA approves the Conceptual Design Report, the facility should complete the design of the approved corrective measure (Phase II of the CMP). Upon final completion of the design, the Final Design Report, consisting of final plans, specifications, construction workplan, etc. must be submitted to the Illinois EPA for review and approval. Typically, the Illinois EPA requires that these documents be submitted to the Illinois EPA within 120 days after the Conceptual Design Report has been approved. The final design report of the CMP must be submitted to the Illinois EPA in the form of a Class II permit modification in accordance with 35 Ill. Adm. Code Part 703. Should implementation of the corrective measures include construction/installation of additional structures which would meet the definition of RCRA regulated units, the Illinois EPA may notify the Permittee that the submittal will be reviewed as a Class III permit modification in accordance with 35 Ill. Adm. Code Part 703. In any event, as the submittal is either a Class II or Class III modification to the facility permit, the Illinois EPA response will be handled in accordance with the procedures for Class II and Class III modifications as outlined in 35 Ill. Adm. Code Parts 703 and 705. Several documents must be submitted to the Illinois EPA as part of Phase III of the CMP. The following text describes the expected contents of the various documents which should be developed and submitted to the Illinois EPA as part of Phase III of the CMP.

1. <u>Final Design Report and Construction Workplan</u>. The Final Design Report and Construction Workplan must contain the detailed plans, specifications and drawings needed to construct the corrective measure. In addition, this document must contain (1) calculations, data etc. in support of the final design; and (2) a detailed description of the overall management strategy, construction quality assurance procedures and schedule for constructing the corrective measure. It must be noted that the approved Conceptual Design Report forms the basis for this final report. The information which should be provided in this document includes:

- a. <u>Introduction/Purpose</u>. This portion of the document should (1) provide background information regarding the project, (2) describe the purpose and goals of the project, and (3) describe the scope of the project.
- b. <u>Detailed Plans of the Design System</u>, including the following:
 - 1. Plan views;
 - 2. Section and supplementary views which, together with the specifications and general layouts, facilitate construction of the designed system;
 - 3. Dimensions and relative elevations of structures;
 - 4. Location and outline form of the equipment;
 - 5. Ground elevations; and
 - 6. Descriptive notations, as necessary, for clarity.
- c. <u>Technical Specifications</u>. Complete technical specifications for the construction of the system. The specifications accompanying construction drawings should include, but are not limited to, the following:
 - 1. All construction information, not shown in the drawings, which is necessary to inform the contractor in detail as to the required quality of materials, workmanship, and fabrication of the corrective measure;
 - 2. The type, size, strength, operating characteristics and rating of the equipment;
 - 3. The complete requirements for all mechanical and electrical equipment, including machinery, valves, piping and jointing of pipe;
 - 4. Electrical apparatus, wiring and meters;
 - 5. Construction materials;
 - 6. Chemicals, when used;
 - 7. Miscellaneous appurtenances;
 - 8. Instruction for testing materials and equipment as necessary; and

- 9. Availability of site background information (such as soil boring, etc.).
- d. <u>Project Management</u>. A description of the construction management approach, including the levels of authority and responsibility, lines of communication and qualifications of key personnel who will direct corrective measures construction/installation must be provided in the workplan.
- e. <u>Construction Quality Assurance/Quality Control</u>. The workplan must contain a construction quality assurance/quality control plan describing the procedures which will be followed to ensure the corrective measure is constructed/installed in accordance with the approved plans and specifications.
- f. Schedule. The workplan must contain a schedule for completion of all major activities associated with construction/installation of the selected corrective measures. All major points of the construction/installation should be highlighted, with a graphical representation of the project schedule included.
- g. <u>Waste Management Practices</u>. This portion of the document should identify the wastes anticipated to be generated during the construction/installation of the corrective measures, and provide a description of the procedures for appropriate characterization and management of these wastes.
- h. Required Permits. This portion of the report should contain copies of permit applications submitted to other Bureaus of the Illinois EPA for the selected corrective measure. If it is determined that no permit is required for construction/installation and implementation of the corrective measures, rationale and justification must be provided to support this contention.
- 2. Operation and Maintenance Plan. An Operation and Maintenance Plan must be developed and submitted as part of Phase III of the CMP. This plan should outline the procedures for performing operations, long term maintenance, and monitoring of the corrective measure.
 - a. <u>Introduction and Purpose</u>. This portion of the document should provide a brief description of the facility operations, scope of the corrective measures project, and summary of the project objectives.
 - b. <u>System Description</u>. This portion of the document should provide a description of the corrective measure and significant equipment, including manufacturer's specifications. This portion of the plan should also include a narrative of how the selected system equipment is capable of complying with the final engineered design of the corrective measure.

- c. <u>Operation and Maintenance Procedures</u>. This portion of the document should provide a description of the normal operation and maintenance procedures for the corrective measures system, including:
 - a. Description of tasks for operation;
 - b. Description of tasks for maintenance;
 - c. Description of prescribed treatment or operation conditions; and
 - d. Schedule showing the frequency of each operation and maintenance task.
- d. <u>Inspection Schedule</u>. This portion of the document should provide a description of the procedures for inspection of the corrective measures system, including problems to look for during the inspection procedure, specific inspection items, and frequency of the inspections.
- e. <u>Waste Management Practices</u>. This portion of the document should provide a description of the wastes generated by operation of the corrective measures, and the appropriate procedures for proper characterization and management of these wastes.
- f. <u>Contingency Procedures</u>. This portion of the document should provide a description of the procedures which will address the following items:
 - 1. System breakdowns and operational problems including a list of redundant and emergency backup equipment and procedures;
 - 2. Alternative procedures (i.e., stabilization) which are to be implemented in the event that the corrective measure suffers complete failure. The alternative procedures must be able to prevent release or threatened releases of hazardous wastes/hazardous constituents which may endanger human health and the environment, or exceed cleanup standards.
 - 3. Notification of facility and regulatory personnel in the event of a breakdown in the corrective measures, including written notification identifying what occurred, what response action is being taken and any potential impacts on human health and the environment.

5.0 Phase IV of the CMP

Once the reports required by Phase III above are approved by the Illinois EPA, construction/installation of the approved corrective measure must commence. During this period, quarterly reports should be submitted which contain the following information:

- 1. Summary of activities completed during the reporting period;
- 2. An estimate of the percentage of the work completed;
- 3. Summaries of all actual or proposed changes to the approved plans and specifications or their implementation;
- 4. Summaries of all actual or potential problems encountered during the reporting period;
- 5. Proposal for correcting any problems; and
- 6. Projected work for the next reporting period.

Upon completion of construction/installation of the approved corrective measure, a Construction Report must be submitted to the Illinois EPA documenting that these efforts were carried out in accordance with the Illinois EPA approved plans and specifications. This report should contain a thorough description of the efforts that went into constructing/installing the corrective measure and demonstrate that the procedures in the Illinois EPA-approved Final Design Report were followed during this effort. Such a report should be formatted in a logical and orderly manner and contain the following information:

- 1. An introduction discussing the background of the project and the purpose and scope of the corrective measure described in the report.
- 2. Identification of the plans, technical specifications and drawings which were used in constructing/installing the corrective measure. These specifications and drawings should have been approved by the Illinois EPA during Phase III.
- 3. Identification of any variations from the Illinois EPA approved plans, technical specifications and drawings used in construction/installing the corrective measure.

 Justification regarding the need to vary from the approved plans and specifications must also be provided.
- 4. A description of the procedures used to construct/install the corrective measure, including the procedures used for quality assurance and quality control.
- 5. As-built drawings, including identification of any variations from the approved plans, technical specifications and drawings.
- 6. A summary of all test results from the construction/installation effort, including quality assurance/quality control testing.

- 7. Actual test results, including quality assurance/quality control test results. These results should be located in an attachment/appendix and be well organized.
- 8. Identification of any test results which did not meet the specified value and a description of the action taken in response to this failure, including re-testing efforts.
- 9. Photographs documenting the various phases of construction.
- 10. A detailed discussion of how the construction/installation effort met the requirements of the approved Final Design Report.
- 11. A certification by an independent qualified, registered professional engineer and by an authorized representative of the owner/operator (the authorized representative must meet the requirements of 35 IAC 702.126). The wording for this certification must also meet the requirements of 35 IAC 702.126.

6.0 Phase V of the CMP

Once the corrective measure has been constructed/installed, it must be operated, maintained and monitored in accordance with the approved operations and maintenance plans. During this period, quarterly reports must be submitted to the Illinois EPA documenting the results of these efforts. These reports should contain the following information:

- 1. <u>Introduction</u>. This portion of the document should provide a brief description of the facility operations, scope of the corrective measures project, and summary of the project objectives.
- 2. <u>System Description</u>. This portion of the document should provide a description of the corrective measures constructed/installed at the site, and identify significant equipment.
- 3. <u>Monitoring Results</u>. This portion of the document should provide a description of the monitoring and inspection procedures to be performed on the corrective measures. The document should include a summary of the monitoring results for the corrective measures, including copies of any laboratory analyses which document system effectiveness, and should provide a description of the monitoring procedures and inspections performed. Copies of all laboratory analytical results which document system monitoring must be provided.
- 4. <u>Effectiveness Determination</u>. This portion of the document should provide calculations and other relevant documentation that demonstrates the effectiveness of the selected corrective measure in remediating/stabilizing contamination to the extent anticipated by

- the corrective measures final design. Copies of relevant analytical data should be provided to substantiate this determination.
- 5. <u>System Effectiveness Recommendation</u>. Based upon the results of the effectiveness determination required under 4. above, this portion of the report should provide a recommendation on continuance of the corrective measure. If the corrective measure is not performing in accordance with the final design, a recommendation on revisions or expansion of the system should be provided. Additionally, based upon the monitoring results, a schedule for achieving the cleanup objectives should be included with each evaluation.

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ILLINOIS ENVIRONMENTAL PROTECTION AGENCY

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PAT QUINN, GOVERNOR

DOUGLAS P. SCOTT, DIRECTOR

217/524-3300

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DEC 2 2 2010

Mr. Robert Kent Vice President and Plant Manager The Lemont Refinery, CITGO Petroleum Corporation 135th Street and New Avenue Lemont, Illinois 60439-3659

Re: 1978030004 -- Will County

CITGO, Lemont Refinery

ILD041550567

RCRA Permit Log No: B-162R RCRA Permits Admin Record File

Permit Draft

Dear Mr. Kent:

Attached is a DRAFT of the renewed RCRA Hazardous Waste Management Post Closure permit and associated Fact Sheet for the above referenced facility in Lemont, Illinois. The draft permit is based on the administrative record contained in the Agency's files. The contents of the administrative record are described in 35 Ill. Adm. Code 705.144.

Under the provisions of 35 Ill. Adm. Code 705.141(d), the draft permit and administrative record must be publicly noticed and made available for public comment. A public notice regarding the availability of this draft permit for public comment will be placed in the Homer Sun newspaper. The public comment period for this draft permit begins on December 31, 2010 and ends on February 14, 2011. Copies of the draft decision, fact sheet, and application are available for review at the Lemont Public Library, 50 E. Wend Street in Lemont.

During the comment period, the applicant or any interested party may submit comments to the Illinois EPA on the draft permit. At the close of the comment period, the Illinois EPA will prepare a response to significant comments. Comments on the draft renewal permit may be submitted to:

Mara McGinnis, Office of Community Relations, # 5 Illinois Environmental Protection Agency 1021 North Grand Avenue East Post Office Box 19276 Springfield, Illinois 62794-9276 Illinois EPA will issue a final permit after the close of the public comment period unless the Illinois EPA decides to revise the tentative decision. The appeal process and limitations are addressed in 35 Ill. Adm. Code 705.212.

Within 35 days after the notification of a final permit decision, the Permittee may petition the Illinois Pollution Control Board to contest the issuance of the permit. The petition shall include a statement of the reasons supporting a review, including demonstration that any issues raised in the petition, were previously raised during the public comment period. In all other respects the petition shall be in accordance with the requirements for permit appeals as set forth in 35 Ill. Adm. Code Part 105. Nothing in this paragraph is intended to restrict appeal rights under Section 40(b) of the Environmental Protection Act (35 Ill. Adm. Code 705.212(a)).

If you have any questions concerning this draft permit, please contact Rob Watson, P.E. at 217/524-3265. Questions regarding the groundwater aspects of this draft permit should be directed to Paula Stine at 217-524-3861. Questions regarding the corrective action aspects of this draft permit should be directed to Takako Halteman at 217-524-3274.

Sincerely,

Stephen F. Nightingale, P.E.

Manager, Permit Section

Bureau of Land

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Attachment 1: Fact Sheet

Attachment 2: Draft RCRA Permit

cc: Willie Harris, USEPA Region V

Mark Robbins, TRC

FACT SHEET DRAFT Renewal RCRA Hazardous Waste Permit

CITGO Lemont Refinery

USEPA ID No: ILD041550567 STATE ID No: 1978030004 Log No: B-162R

I. INTRODUCTION

The Illinois EPA has prepared a draft renewed Resource Conservation Recovery Act (RCRA) permit for public comment for the CITGO Lemont Refinery located at 135th Street and New Avenue in Lemont, Illinois. This fact sheet has been prepared pursuant to the requirements of 35 Illinois Administrative Code (35 Ill. Adm. Code) 705.143 and it provides a brief summary of the principal facts and significant factual, legal, methodological, and policy questions considered in preparing this draft RCRA Permit.

The permit, if issued, would require CITGO to carry out the following activities at the Refinery: 1) close the four areas in the hazardous waste land treatment facility, 2) provide a minimum of 30 years of post-closure care for the closed land treatment facility, 3) conduct a groundwater detection monitoring program, and 4) continue to conduct a corrective action program on the solid waste management units (SWMUs) including site-wide groundwater monitoring at the CITGO Lemont Refinery. The permit contains all of the standard conditions required by 35 Ill. Adm. Code Parts 702, 703, and 724; and the applicable conditions for treatment, storage, or disposal facilities to ensure the requirements of 35 Ill. Adm. Code Part 724 are met.

The CITGO Lemont Refinery is an existing facility that began operating under the RCRA Interim Status Standards in November, 1980. The facility was issued a RCRA Permit (Log No B-162) on September 18, 1997 for post-closure care of the land treatment facility at the CITGO Refinery. The original permit expired on October 23, 2007. An application to renew this permit was initially submitted by CITGO on April 23, 2007. In accordance with 35 Ill. Adm. Code 702.125, the requirements of the original permit remain in place beyond the expiration date due to the timely submittal of an application to renew the permit. The draft renewed permit contains requirements similar to those set forth in the original permit, updated as appropriate to reflect the current status of the facility and the applicable regulations.

II. DESCRIPTION OF FACILITY

A. General Site History

The CITGO Lemont Refinery is a petroleum refinery that covers approximately 900 acres. It has a rated capacity of about 160,000 barrels per day. The refinery was built in the 1920's. Globe Oil & Refining Co. purchased the refinery in 1928. Pure Oil Company purchased the facility in 1954. Union Oil Company merged with Pure Oil in 1965. The new Chicago Refinery was constructed between 1967 and 1970. Union Oil Corporation (UNION OIL) operated the refinery until 1989 at which time the UNO-VEN Company (UNO-VEN) was formed through a joint venture between UNION OIL and Petroleus de Venezuela, SA (PDVSA). In 1997 PDV Midwest Refining, LLC became the owner and CITGO Petroleum Corporation became the operator of the Refinery. The refinery's major products include: gasoline, diesel fuels, aviation turbine fuels, petroleum coke, petrochemical solvents, and liquefied petroleum gas.

B. Site Description

The CITGO Lemont Refinery is located near the city of Lemont, Illinois. It is bordered to the west and north by the Illinois & Michigan Canal, to the east by Smith Road, and south by 135th Street. Land uses to the north are industrial, to the east are agricultural and residential, those to the south are agricultural, recreational, and residential.

The total acreage of the hazardous waste land treatment facility (LTF) is 13.5 acres. Area I was opened in 1973 and the remaining three areas were opened in 1980. Wastes were either directly applied to the soil or were dewatered in adjacent decant basins. After dewatering, the solids were then placed on the land treatment areas. After waste was applied, it was incorporated into the soil.

API separator sludge (K051; a hazardous waste listed due to toxicity), was treated at the LTF until September 1981. After that time, only nonhazardous wastes were applied to the LTF. These nonhazardous wastes included clear well sludge, cooling tower sludge, heavy oil sludge, stormwater basin dredgings and water/wastewater treatment sludges. The majority of the wastes were stormwater basin dredgings and water/wastewater treatment sludges. The last time wastes were applied to the LTF for treatment was in November 1989. In 1995 the Permittee was allowed to place several piles of sludge generated during the closure of the storm water basin on Area I. These piles will be incorporated into the closure of the LTF.

<u>Hazardous Waste</u> <u>Unit Name</u>	Capacity	Hazardous Waste in Units
Area I Area II Area IV	5.5 acres 4.2 acres 1.2 acres 2.6 acres	API Separator Sludge (K051) API Separator Sludge (K051) API Separator Sludge (K051) API Separator Sludge (K051)
Total Acres =	13.5 acres	

III. HAZARDOUS WASTE MANAGEMENT UNITS

A. CLOSURE

This Permit prohibits CITGO from placing any additional wastes on the four land treatment areas and requires CITGO to close the LTF. The piles of sludge from the stormwater basin on Area I may be spread out on Areas I and/or II as needed to fill in low areas. The LTF areas will be graded to appropriate contours, and a vegetative layer will be placed over all of the land treatment areas. Section III of the Permit contains conditions that are specific to the closure of the LTF and that implement the regulatory requirements of 35 IAC Part 724, Subpart G.

B. POST-CLOSURE

Following closure, CITGO will be required to provide at least 30 years of post-closure care for the LTF. The permit requires CITGO to monitor the soil and groundwater under the LTF, as well as inspect, maintain, and keep records of the areas and activities conducted at the permitted units in accordance with the provisions of the post-closure care plan located in the permit application. Section IV of the Permit contains conditions that are specific to the post-closure care of these units and that implement the regulatory requirements of 35 IAC Part 724, Subpart G.

To date, a statistically significant increase of hazardous constituents has not been detected in the soil under the LTF, and hazardous constituents have not been detected in the groundwater under the LTF.

C. GROUNDWATER DETECTION MONITORING PROGRAM

Permit Section V contains conditions requiring groundwater monitoring to detect any releases from the LTF that could potentially impact the uppermost aquifer. The facility has six (6) monitoring wells to monitor the uppermost aquifer at the LTF: one (1) hydraulically upgradient well; five (5) downgradient wells located at the hydraulically downgradient limit of the waste management area; and eighteen (18) piezometer wells for monitoring groundwater surface elevations only. Groundwater parameters monitored in the uppermost aquifer below the facility indicate, at the present time, no impacts have occurred and thus a Groundwater

Detection Monitoring Program meeting the requirements of 35 Ill. Adm. Code 724.198 shall be implemented.

IV. CORRECTIVE ACTION AT SOLID WASTE MANAGEMENT UNITS

This draft Permit requires CITGO to conduct corrective action, as necessary to protect human health and the environment, on any solid waste management units (SWMUs) at the facility found to be releasing hazardous wastes or hazardous constituents. Such activities must be carried out on any unit which was used to manage solid waste, regardless of when the management took place. These corrective action activities include development and execution of: (1) a RCRA Facility Investigation (RFI) to determine whether there has been a release from the SWMUs of concern at the facility and the extent of any detected contamination; and (2) a Corrective Measures Program to provide the corrective action necessary to protect human health and the environment from the releases discovered during the RFI.

Based upon the results of the RCRA Facility Assessment which was conducted by the Illinois EPA for this facility and recent activities at the facility, the Corrective Action Program must be carried out at 54 SWMUs identified in Section VI of this Draft Permit. The SWMUs have been grouped into two categories (Group 1 and Group 2) based on their estimated potential risk to human health and the environment. In addition, SWMUs identified through the Sewer Inspection and Maintenance Program for the entire facility are also included in the Corrective Action Program.

In addition to the above, the facility has been implementing groundwater investigation through two groundwater monitoring programs: (1) the Groundwater Management Zone (GMZ); and (2) the Site-Wide Groundwater Monitoring Program. Any of the SWMUs identified in the RFI as having groundwater as a media of concern, must also be evaluated as a part of the Site-Wide Groundwater Monitoring Program as appropriate.

A brief summary of each afore-mentioned aspect of the Corrective Action Program at the facility is described below:

- 1. Group 1 SWMUs, which consists of 26 SWMUs, have either had known releases in the past or pose the highest potential for releases that could impact the environment. To date, the facility has conducted Phase I and Phase II RFIs at all Group 1 SWMUs as necessary.
- 2. Group 2 SWMUs, which include 28 SWMUs identified to date, are not known to have had releases and have a low potential for environmental impact. All newly discovered SWMUs are also added to Group 2. To date, the facility has conducted, at minimum, the Phase I RFI at all Group 2 SWMUs.

- 3. The Site-Wide Sewer Inspection and Maintenance Program must be conducted in a phased approach for the Process Sewer System, the Storm Sewer System and the Open Flow Stormwater Ditches. This program began in 2004 and is on-going. Any defective equipment/system defect found to require further investigation must be identified as SWMUs and will be required to satisfy RFI requirements under the Corrective Action Program.
- 4. Groundwater Management Zone (SWMU 33) is included in Group 1. The GMZ Monitoring Program is currently being conducted as part of the Corrective Action Program. The GMZ was originally approved by the Illinois EPA on April 1, 1994 and was eventually incorporated in the RCRA Part B Permit as SWMU 33. The GMZ Monitoring Program is currently being implemented at the South Plant and includes: 14 monitoring wells; 15 bedrock piezometers; two staff gauges located in the I&M Canal; and the Green Coke Storage Area (GCSA) sump (which controls the groundwater by inward gradient control pumping).
- 5. The Site-Wide Groundwater Monitoring Program consists of a network of wells used to determine the quality of groundwater as it relates to multiple SWMUs within the Corrective Action Program. The Site-Wide Groundwater Monitoring Program currently includes 26 monitoring wells and 10 piezometers. Fifteen (15) Corrective Action Program wells may eventually be added to the Site-Wide Groundwater Monitoring Program. Remediation activities associated with the Site-Wide Groundwater Monitoring Program include groundwater recovery wells (GRW-1, GRW-2, and GQ-MW-2A), skimmer pumps, and the French Drain System.

V. CONSIDERED PERMIT ACTIONS OTHER THAN RCRA

A. Air

The air emissions from a this facility are regulated under the Clean Air Act (CAA), Illinois' Environmental Protection Act and State regulations at Title 35: Environmental Protection, Subtitle B: Air Pollution. Under these regulations, the facility is required to obtain a Permit to install or operate any process which is, or may be, a source of air pollutants. The facility has a number of permits regulating the air emissions from the refinery operations.

B. Water

A discharge of any waste waters from a hazardous waste management facility into the waters of the State is required to have a National Pollutant Discharge Elimination System (NPDES) Permit, issued by the Agency under Section 39(b) of the Environmental Protection Act. The facility's NPDES Permit number is IL0001589.

VI. PROCEDURES FOR REACHING A FINAL DECISION

Pursuant to 35 IAC 705.162(a)(2), the public is given forty-five (45) days to review the application and comment on the draft renewal permit conditions prior to Illinois EPA taking any final permitting action on the application for this RCRA Hazardous Waste Management Permit. The comment period will begin on December 31, 2010 and will end on February 14, 2011. When the Agency makes its final permit decision, notice will be given to the applicant and each person who has submitted written comments or requested notice of the final permit decision. The permit will become effective thirty-five (35) days after service of notice of the decision, unless it is appealed, or at a later date if stated in the permit unless the decision is appealed.

Copies of the permit application, draft permit and fact sheet are available for review at:

Lemont Public Library 50 E. Wend Street Lemont, Illinois 60439

The administrative record is available for public inspection by appointment only at the Illinois EPA Springfield headquarters from 8:30 a.m. to 5:00 p.m., Monday through Friday. This administrative record contains the permit application, fact sheet, and other supporting documents and correspondence submitted to the Illinois EPA. Inspections of the administrative record must be scheduled in advance by contacting Ms. McGinnis at the phone number or address below.

Mara McGinnis, Office of Community Relations, # 5 Illinois Environmental Protection Agency 1021 North Grand Avenue East Post Office Box 19276 Springfield, Illinois 62794-9276 (217) 524-3288

In response to requests received during the comment period or at the discretion of the Illinois EPA, a public hearing may be held to clarify one or more issues concerning the permit application. A request for a public hearing must be in writing and shall state the nature of the issues proposed to be raised in the hearing. Public notice will be issued forty-five (45) days before any public hearing.

For further information regarding the permit process, to submit written comments on the draft permit, or to request a public hearing, please contact Mara McGinnis at the above telephone number or address.

HAZARDOUS WASTE MANAGEMENT RCRA PERMIT

1978030004 – Will County USEPA ILD 041550567 CITGO, Lemont Refinery Log No: B-162R RCRA Permit – Admin Record File Permit Draft Issue Date: Effective Date: Expiration Date: Modification Date:



PERMITTEE

CITGO Petroleum Corporation 135th Street and New Avenue Lemont, Illinois 60439-3659

A DRAFT renewed RCRA Post-Closure permit is hereby granted to PDV Midwest Refining, LLC as Owner, and CITGO Petroleum Corp. as Operator and Permittee pursuant Section 39(d) of the Illinois Environmental Protection Act and Title 35 Illinois Administrative Code Subtitle G (35 Ill. Adm. Code).

This permit requires CITGO to close and provide post-closure care for the four areas in the hazardous waste land treatment facility (LTF) at the CITGO Lemont Refinery in accordance with the approved permit application and the conditions in this permit. The CITGO Lemont Refinery is located at 135th Street and New Avenue in Lemont, Illinois.

This permit consists of the conditions contained herein and those in the sections and attachments in this permit. The Permittee must comply with all terms and conditions of this permit and the applicable regulations contained in 35 Ill. Adm. Code Parts 702, 703, 705 and 720 through 729 in effect on the effective date of this permit.

This permit is issued based on the information submitted in the approved permit application identified in Section II of this permit and any subsequent amendments. Any inaccuracies found in the information provided in the permit application may be grounds for the termination or modification of this permit (see 35 III. Adm. Code 702.187 and 702.186) and potential enforcement action (415 ILCS 5/44(h)).



Stephen F. Nightingale, P.E. Manager, Permit Section Bureau of Land

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RCRA POST-CLOSURE PERMIT

CITGO Lemont Refinery

ILD No. 041550567

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SECTION I – GENERAL FACILITY DESCRIPTION

I.A. OWNER

The facility owner is PDV Midwest Refining, LLC, herein referred to as the "owner". [35 IAC 702.123 & 703.181]

PDV Midwest Refining, LLC 750 Lexington Ave., 10th Floor New York, New York 10020

I.B. OPERATOR

The facility operator is the CITGO Petroleum Corporation, herein referred to as the "Permittee." [35 IAC 702.121, 702.123 & 703.181]

The Lemont Refinery, CITGO Petroleum Corporation 135th Street & New Avenue Lemont, IL 60439-3659

I.C. LOCATION

I.C.1. Location of Facility

The CITGO Lemont Refinery is located in Will County in Illinois. CITGO owns approximately 900 acres at this location with approximately 13.5 acres devoted to the management of hazardous waste in four areas in the hazardous waste land treatment facility (LTF). The CITGO Lemont Refinery is located at:

The Lemont Refinery, CITGO Petroleum Corporation 135th Street & New Avenue Lemont, IL 60439-3659

The general phone number for the facility is 630-257-4000.

I.C.2 Facility Layout Maps

The general location of the CITGO Lemont Refinery is shown in Figure 1. The four hazardous waste land treatment areas at the LTF are shown below on Figure 2.

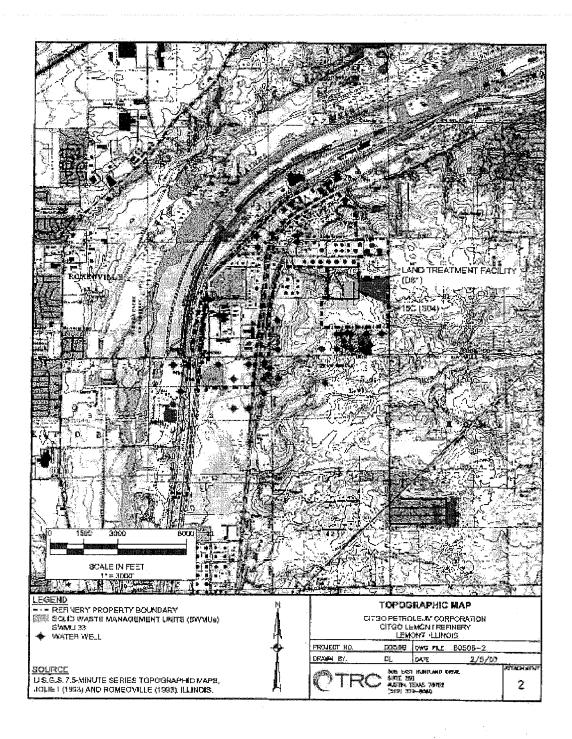


Figure 1: CITGO Lemont Refinery

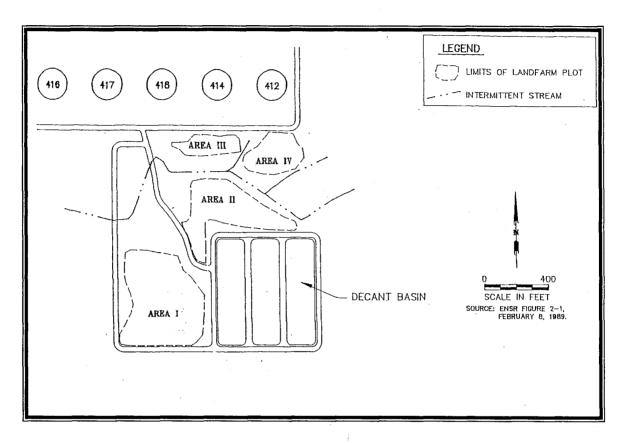


Figure 2: Land Treatment Areas, Intermittent Stream, & Decant Basin

I.D. DESCRIPTION OF HAZARDOUS WASTE MANAGEMENT ACTIVITIES

Operations began at the LTF when Area I was opened in 1973. The remaining three areas were opened in 1980. Wastes were either directly applied to the soil or were dewatered in adjacent decant basins. After dewatering, the solids were then placed on the land treatment areas. After waste was applied, it was incorporated into the soil.

API separator sludge (a listed hazardous waste: K051), was treated at the LTF until September, 1981. After that time, only nonhazardous wastes were applied to the land treatment areas. These nonhazardous wastes included clear well sludge, cooling tower sludge, heavy oil sludge, stormwater basin dredgings and water/wastewater treatment sludges. The majority of the wastes were stormwater basin dredgings and water/wastewater treatment sludges. The last time wastes were applied to the LTF for treatment was in November 1989. In 1995 the Permittee was allowed to place several piles of sludge generated during the closure of the storm water basin on Area I. These piles will be incorporated into the closure of the LTF.

Hazardous Waste		
<u>Unit Name</u>	<u>Capacity</u>	Hazardous Waste in Units
Area I	5.5 acres	API Separator Sludge (K051)
Area II	4.2 acres	API Separator Sludge (K051)
Area III	1.2 acres	API Separator Sludge (K051)
Area IV	2.6 acres	API Separator Sludge (K051)
Total Acres =	13.5 acres	_ ,

SECTION II – APPROVED PERMIT APPLICATION

II.A. APPROVED PERMIT APPLICATION

This permit is based on the information in the approved permit application. The approved permit application consists of the following documents:

<u>Document</u>	<u>Date</u>	Date Received
RCRA Permit Application	April 23, 2007	April 23, 2007
Additional Information	July 31, 2007	August 2, 2007
Additional Information	August 10, 2007	August 10, 2007
Notice of Intent to Close the LTF	June 4, 2010	June 8, 2010
Additional Information	June 9, 2010	June 14, 2010

SECTION III - RCRA CLOSURE

A. INTRODUCTION

The RCRA Post-Closure Permit application addresses the four areas in the land treatment Facility (LTF) at the CITGO Refinery in Lemont, Illinois. As of the date of this permit, these hazardous waste land treatment units (D81) have not been certified closed. Therefore, this Post-Closure permit includes provisions to close these units prior to initiating the post-closure care period.

B. UNIT IDENTIFICATION

1. The Permittee shall perform closure of the following hazardous waste management units (HWMUs) in accordance with RCRA, the Approved Permit Application, and the conditions of this permit:

Type of Waste Unit	Unit <u>Name</u>	Size	Description of F Waste Containe	
Land Treatment	Area I	5.5 acres	API Separator	Sludge (K051)
Land Treatment	Area II	4.2 acres	API Separator	Sludge (K051)
Land Treatment	Area III	1.2 acres	API Separator	Sludge (K051)
Land Treatment	Area IV	2.6 acres 13.5 acres total	API Separator	Sludge (K051)

The locations of these hazardous waste management units (HWMUs) are shown on Figure 1 of this permit.

2. The permittee is prohibited from placing additional hazardous or nonhazardous waste on the land treatment units.

C. INSPECTIONS

1. The Permittee shall inspect the components, structures, and equipment at the land treatment facility in accordance with the inspection schedules identified as Tables F-1, F-2, and F-3 in the Approved Permit Application. The inspection frequencies for the items in the Inspection Schedules shall be those specified in Tables F-1, F-2, and F-3.

- 2. Results of all inspections and a description of any remedial actions taken shall be documented in the inspection log for the facility.
- 3. The Permittee shall continue to follow the inspection procedures in this condition until the Illinois EPA approves the closure certification for the LTF.

D. MONITORING REQUIREMENTS

- 1. The Permittee shall maintain and monitor the LTF groundwater detection monitoring system in accordance with the Approved Permit Application and the conditions in this permit during the closure period.
- 2. The Permittee shall maintain and monitor the unsaturated zone (soil) monitoring system in accordance with the Approved Permit Application and the conditions in Section IV.D of this permit during the closure period.

E. CLOSURE REQUIREMENTS

- 1. The Permittee shall close the LTF in accordance with the plans and specifications contained in the closure plan of the Approved Permit Application, and the conditions in this permit.
- 2. The permittee shall prepare a survey plat indicating the location and dimensions of each of the land treatment areas and any other hazardous waste disposal units with respect to permanently surveyed benchmarks. This plat shall be prepared and certified by a professional land surveyor. The plat shall contain a note, prominently displayed, which states the owner's and operator's obligation to restrict disturbance of the land treatment areas in accordance with the applicable Subpart G regulations and shall state the following:
 - a. The waste materials contained in the land treatment areas are considered RCRA hazardous wastes. The wastes in the land treatment areas include API Separator Sludge (K051).
 - Any material removed from the land treatment areas during future activities must be managed in accordance with 35 Ill. Adm. Code Subtitle G: Waste Disposal.

The permittee shall file this survey plat with any local zoning authority, or authority with jurisdiction over local land use, and record with land titles, no later than the date the certification of closure of the land treatment areas is submitted to the Illinois EPA. The permittee shall submit the survey plat to the Illinois EPA Bureau of Land Permit Section with the certification of closure for the LTF.

- 3. As part of the closure activities, the Permittee shall:
 - a. Record a notation on the deed to the facility property, or on some other instrument which is normally examined during title search that will in perpetuity notify any potential purchaser of the property that:
 - 1. The waste material in the LTF is considered a RCRA hazardous waste;
 - 2. Use of the area is restricted; and
 - 3. A survey plat and record of the type, location and quantity of waste material in the land treatment areas has been filed with the Illinois EPA, the County Recorder, and any local zoning authority or authority with jurisdiction over local land use.
 - b. Attach the survey plat specified in this permit to the deed for the subject property, or on some other instrument which is normally examined during title search, which will in perpetuity notify any potential purchaser of the property of the requirements set forth in the notation on the survey plat.
 - c. Submit the survey plat specified in this permit to the County Recorder, any local zoning authority and any other authority over local land use.
- 4. Within sixty (60) days after closure of the LTF is complete, the Permittee shall submit certification to the Illinois EPA by registered mail that the units have been closed in accordance with the approved closure plan. The following items must be included with the closure certification:
 - a. A Class 1* permit modification requesting to modify this permit to delete those conditions that do not pertain to a post-closure permit. This submittal shall include a properly completed IEPA permit application form LPC-PA23. The PA23 Form must be signed and sealed by a qualified Professional Engineer registered in the State of Illinois and the owner/operator must check the box identifying the appropriate certification statement.
 - b. The closure certification form in Attachment A to this permit. Signatures must meet the requirements of 35 Ill. Adm. Code Section 702.126. The qualified Professional Engineer registered in the State of Illinois should be present at all critical, major points (activities) during the closure. These might include soil sampling, soil removal, backfilling, final cover placement, etc. The frequency of inspections by the qualified Professional

Engineer must be sufficient to determine the adequacy of each critical activity.

- c. A Closure Documentation Report which includes the following items:
 - i. A description of how the LTF was closed in accordance with the approved closure plan.
 - ii. Documentation that the requirements for the survey plat specified in Conditions E.2 and E.3 above have been met.
 - iii. Documentation that the owner/operator has recorded the notation on the deed (or other instrument) as specified in Condition E.3.
 - iv. The total volume of waste in each land treatment area. The term waste includes wastes resulting from decontamination activities.
 - v. Scaled drawings showing the horizontal and vertical boundaries of each land treatment area and the run-on / run-off control systems.
 - vi. The volume of any waste and waste residue removed, including wastes generated during decontamination procedures.
 - vii. A description of the method of waste handling and transport.
 - viii. Copies of the waste manifests.
 - ix. A description of the sampling and analytical methods used.
 - x. A chronological summary of closure activities and the cost involved.
 - xi. Tests performed, methods, and results.
 - xii. Color photographs of closure activities which document conditions before, during and after closure.
 - xiii. A scale drawing of all excavated or decontaminated areas and sample locations.
- 5. Under the provisions of 29 CFR 1910 (51 FR 15,654, December 19, 1986), cleanup operations must meet the applicable requirements of OSHA's Hazardous Waste Operations and Emergency Response standard. These requirements include hazard communication, medical surveillance, health and safety programs, air monitoring, decontamination and training. General site workers engaged in

activities that expose or potentially expose them to hazardous substances must receive a minimum of 40 hours of safety and health training off site plus a minimum of three days of actual field experience under the direct supervision of a trained experienced supervisor. Managers and supervisors at the cleanup site must have at least an additional eight hours of specialized training on managing hazardous waste operations.

F. FINANCIAL ASSURANCE

- 1. The permittee shall maintain financial assurance for closure of the LTF of at least \$346,567 (in 2006 dollars). The financial assurance maintained by the facility shall be sufficient to meet the requirements at 35 III. Adm. Code 724 Subpart H.
- 2. Financial assurance must be maintained for closure of the LTF until the Illinois EPA approves the closure certification for the units in accordance with 35 IAC 724.243.
- 3. The Permittee shall demonstrate continuous compliance with the liability insurance requirements at 35 Ill. Adm. Code 724.247 and the documentation requirements of 35 Ill. Adm. Code 724.251 until the permitted units are certified closed.
 - a. The permittee shall maintain liability coverage for sudden accidental occurrences of at least \$1 Million per occurrence with an annual aggregate of at least \$2 Million.
 - b. The permittee shall maintain liability coverage for nonsudden accidental occurrences of at least \$3 Million per occurrence with an annual aggregate of at least \$6 Million.

SECTION IV - POST-CLOSURE CARE

A. <u>SUMMARY</u>

Hazardous waste management units where waste is left in place must receive post-closure care for at least 30 years after completion of closure. Pursuant to 35 IAC Part 724, activities required during post-closure care include, but are not limited to (1) maintenance of final cover, (2) monitoring of the groundwater, and (3) providing financial assurance for post-closure activities.

B. UNIT IDENTIFICATION

1. The Permittee shall provide post-closure care for the four areas in the hazardous waste land treatment facility (LTF) in accordance with the Approved Permit Application and the conditions of this permit:

Type of Waste Unit	Unit <u>Name</u>	Size	Description of Hazardous <u>Waste Contained in the Unit</u>
Land Treatment	Area I	5.5 acres	(K051) API Separator Sludge
Land Treatment	Area II	4.2 acres	(K051) API Separator Sludge
Land Treatment	Area III	1.2 acres	(K051) API Separator Sludge
Land Treatment	Area IV	2.6 acres 13.5 acres tota	(K051) API Separator Sludge

C. MONITORING, MAINTENANCE, & RECORD KEEPING

- 1. The Permittee shall implement the approved Post-Closure Plan contained in the Approved Permit Application. All post-closure care activities must be conducted in accordance with the conditions in this permit and the provisions of the approved Post-Closure Plan.
- 2. The Permittee shall begin the post-closure care period for the hazardous waste management unit(s) listed in Section B above after completion of closure of the unit(s) as specified in Section III of this permit. The permittee shall continue the post-closure care of these units for at least thirty (30) years after that date.
- 3. The Illinois EPA may require institutional controls restricting the future use of the site if necessary to protect public health and the environment, including permanent

prohibition of the use of the site for purposes which may create an unreasonable risk of injury to human health or the environment. The permittee shall file such restrictions of record in the Office of the Recorder of the county in which the hazardous waste disposal site is located. If necessary, the Illinois EPA shall file such restrictions of record after any administrative and judicial challenges to such restrictions have been exhausted.

- 4. The Permittee shall not allow any use of the units designated in Section B to be used in a manner that will disturb the integrity of the final cover, the run-on or run-off control systems, or the function of the facility's monitoring systems during the post-closure care period unless such use is necessary to protect public health or the environment.
- 5. The Illinois EPA may require, at partial and/or final closure, continuation of any of the security requirements during part or all of the post-closure period.
- 6. The Permittee must request a permit modification to authorize a change in this permit or the approved Post-Closure Plan. This request must be in accordance with applicable requirements of Parts 702, 703 and 724 and must include a copy of the amended Post-Closure Plan for approval by the Illinois EPA.
- 7. The Permittee shall maintain and monitor the LTF groundwater detection monitoring system in accordance with the Approved Permit Application and the conditions in this Permit during the post-closure period.
- 8. The Permittee shall maintain and monitor the unsaturated zone monitoring system in accordance with the Approved Permit Application and the conditions in this Permit during the post-closure period.
- 9. The Permittee shall maintain the integrity and effectiveness of the final cover, including making repairs to the cap as necessary to correct the effects of settling, subsidence, erosion, and other events.
- 10. The Permittee shall prevent run-on and run-off from eroding or otherwise damaging the final cover.
- 11. The Permittee shall maintain a record of all inspections, monitoring, and maintenance activities in the facility's operating record. A copy of the operating record must be kept on-site.
- 12. The permittee shall not grow food chain crops on the land treatment facility cover system.

- 13. The Permittee shall comply with the requirements for the land treatment facility described in the approved permit application and the conditions in this permit as follows:
 - a. Continue all operations (including pH control) necessary to enhance degradation and transformation and sustain immobilization of hazardous constituents in the treatment zone to the extent that such measures are consistent with other post-closure care activities.
 - b. Maintain a vegetative cover over closed portions of the unit.
 - c. Maintain the run-on control system.
 - d. Maintain the run-off management system.
 - e. Control wind dispersal of hazardous waste.
 - f. Continue to comply with any prohibitions or conditions concerning growth of food-chain crops.
 - g. Continue unsaturated zone monitoring.

D. <u>UNSATURATED ZONE MONITORING</u>

- 1. The Permittee shall monitor the soils below the treatment zone in the LTF in accordance with the Unsaturated Zone Monitoring (UZM) Plan in the Approved Permit Application and the conditions in this permit to determine if any hazardous constituents have migrated out of the treatment zone.
- 2. <u>Sample Locations</u>: The Permittee shall randomly select the locations for soil core samples in accordance with the procedure specified in Appendix I.1.6-1 of the Approved Permit Application. A minimum of eight soil samples shall be collected from the four land treatment areas as specified below:

<u>Area</u>	<u>Size</u>	No. of Samples
Area I	5.5 acres	3
Area II	4.2 acres	2
Area III	1.2 acres	1
Area IV	2.6 acres	2
TOTAL	13.5 acres	8

3. <u>Sample Depth</u>: The Permittee shall collect soil core samples immediately below the treatment zone in accordance with the procedures in the UZM Plan in the Approved Permit Application and the conditions in this permit.

The treatment zone at the permitted units is defined as a depth of the historically applied waste plus no more than an additional five feet below the original land surface. The elevations of the original land surface are identified in Figures 2-1 and 2-2 in the Unsaturated Zone Monitoring Plan in Appendix I.1.6-1 of the Approved permit application. The elevations of the original soil surface may be confirmed by visually inspecting the color of the soils immediately above and below the elevations identified in Figures 2-1 and 2-2.

- 4. <u>Sampling and Analysis Procedures</u>: The Permittee shall follow the sampling and analysis procedures in Appendix I.1.5 and Appendix I.1.6-1 of the Approved Permit Application and the conditions in this permit.
 - a. Analytical methods used must be in accordance with the USEPA's "Test Methods for Evaluating Solid Waste, Physical/Chemical Methods (SW-846) Third Edition, Final Update III, Revision 4," dated December 1996 or most recent version. The analytical methods must utilize reporting limits that are equal to or less than the monitoring limits for the parameters specified in the permit. The practical quantitation limits (PQLs) may be used as monitoring limits in those cases where the lab is unable to reach the monitoring limits. The laboratory report must identify all instances when a PQL was used in place of a monitoring limit specified in this permit.
 - b. The SW-846 test methods, sample holding times, containers, and preservatives specified in Table 4-3 in Appendix I.1.5 of the Approved Permit Application must be used when collecting and analyzing soil samples required by the Unsaturated Zone Monitoring program in the application and the conditions in this permit.
- 5. <u>Sampling Frequency and Schedule</u>: The Permittee shall collect soil samples annually in the fourth quarter of each calendar year.
- 6. <u>Analytical Parameters</u>: The soil samples collected shall be analyzed for the following parameters as specified below:
 - a. The soil samples collected every fifth year shall be analyzed for the parameters listed in the following table:

Metals Antimony A	Volatile	Semivolatile	Semivolatile Base/
A**-3.0 - 0.04.000000 0.000 0.000000000000000		Acid-Extractable	Neutral Extractable
Antimony	Compounds	Compounds	Compounds
Anumony A	lcetone	Benzenethiol	Acenaphthylene
Arsenic B	Benzene	Cresols (o, m, & p)	Anthracene
Barium n-	-Butylbenzene	2,4-Dimethylphenol	Benzo(a)anthracene
Beryllium se	ec-Butylbenzene	2,4-Dinitrophenol	Benzo(b)fluoranthene
Cadmium C	Carbon disulfide	4-Nitrophenol	Benzo(k)fluoranthene
1	Chlorobenzene	Phenol	Benzo(g,h,i)perylene
Cobalt C	Chloroform		Benzo(a)pyrene
Lead 1	,2-Dichloroethane		Bis(2-ethylhexyl)phthalate
II • • I •	,4-Dioxane		Butyl benzyl phthalate
Nickel E	Ethylbenzene		Chrysene
	Ethylene dibromide		Dibenz(a,h)acridine
Vanadium 4	l-Isopropyltoluene		Dibenz(a,h)anthracene
N	Methyl ethyl ketone		Dichlorobenzenes
$\mid n \mid$	n-Propylbenzene		Diethyl phthalate
S	Styrene		7,12-Dimethylbenz(a)anthracene
T	Toluene		Dimethyl phthalate
	,3,5-Trimethylbenzene		Di(n)butyl phthalate
1	,2,4-Trimethylbenzene		Di(n)octyl phthalate
X	(ylene (total)		Fluoranthene
	Y		Fluorene
			Indene
			Indeno(1,2,3-cd)pyrene
			Methyl chrysene
			1-Methyl naphthalene
			2-methylnaphthalene
			Naphthalene
			Phenanthrene
			Pyrene
			Pyridine
	•		Quinoline

Note: Non-Skinner List constituents are shown in italics.

b. Soil samples collected during all other years shall be analyzed for the parameters listed in the following table:

Metals	Volatiles	Semivolatiles
Antimony	Acetone	Acenaphthylene
Arsenic	Benzene	Anthracene
Barium	n-Butylbenzene	Benzo(a)anthracene
Beryllium	sec-Butylbenzene	Benzo(g,h,i)perylene
Cadmium	Ethylbenzene	Butyl benzyl phthalate
Chromium	4-Isopropyltoluene	Chrysene
Cobalt	Methyl ethyl ketone	Di(n)octyl phthalate
Lead	n-Propylbenzene	Dibenz(a,h)anthracene
Mercury	Toluene	Fluorene
Nickel	1,3,5-Trimethylbenzene	Indeno(1,2,3-cd)pyrene
Selenium	1,2,4-Trimethylbenzene	Methyl chrysene
Vanadium	Xylene (total)	1-Methylnaphthalene
		2-Methylnaphthalene
		Naphthalene
		Phenanthrene
		Pyrene

- c. If the sampling events required by Condition IV.D.6.a (every fifth year) identify compounds that are not included in Condition IV.D.6.b, those compounds shall be added to the list of compounds in Condition IV.D.6.b.
- 7. The results of each soil sampling event shall be submitted to the Illinois EPA by January 15 of each year.
- 8. The Permittee shall determine whether there is a statistically significant change over background values for any hazardous constituent to be monitored under Condition IV.D.6 each time the soil core monitoring is conducted. This determination shall be made using the statistical procedures contained in the Approved Permit Application and this condition. The Permittee shall make this determination within thirty (30) days after receipt of lab analysis results.

Concentrations greater than the Monitoring Limit for each compound specified in the following table shall be considered to be a statistically significant increase (SSI).

Chemical	Monitoring Limit	Chemical	Monitoring Limit
Inorganics (m	g/kg)	Semivolatile Organic Compounds (μg/kg)	
Antimony	6.69	Acenaphthylene	330
Arsenic	55.6	Anthracene	660
Barium	1028.00	Benzo(a)anthracene	660
Beryllium	2.53	Benzo(b)fluoranthene	660
Cadmium	9.11	Benzo(k)fluoranthene	660
Chromium	368.00	Benzo(g,h,i)perylene	330
Cobalt	60.10	Benzo(a)pyrene	660
Lead	504.00	Bis(2-ethylhexyl)phthalate	660
Mercury	0.90	Butyl benzyl phthalate	660
Nickel	138.00	Chrysene	660
Selenium	0.54	Dibenz(a,h)acridine	330
Vanadium	446.00	Dibenz(a,h)anthracene	660
Volatile Organic Co	mpounds		
(μg/kg)	•	Dichlorobenzenes	660
Acetone	20	Diethyl phthalate	660
Benzene		7,12-Dimethyl-	
	5	benz(a)anthracene	660
n-Butylbenzene	5	Dimethyl phthalate	660
sec-Butylbenzene	5	Di(n)butyl phthalate	660
Carbon disulfide	5	Di(n)octyl phthalate	660
Chlorobenzene	5	Fluoranthene	660
Chloroform	٠5	Fluorene	330
1,2-Dichloroethane	5	Indene	330
1,4-Dioxane	500	Indeno(1,2,3-cd)pyrene	330
Ethylbenzene	5	Methyl chrysene (TIC only)	330
Ethylene dibromide	10	1-Methylnaphthalene	660
4-Isopropyltoluene	5	2-methylnaphthalene	330
Methyl ethyl ketone	20	Naphthalene	660
n-Propylbenzene	5	Phenanthrene	660
Styrene	5	Pyrene	660
Toluene	5	Pyridine	660
1,3,5-Trimethylbenzene	5 .	Quinoline	330
1,2,4-Trimethylbenzene	5	Benzenethiol	3300
Xylene (total)	5	Cresols (o, m, & p)	660
		2,4-Dimethylphenol	660
		2,4-Dinitrophenol	3300
		4-Nitrophenol	3300
		Phenol	660

- 9. If the Permittee determines, pursuant to Condition IV.D.8, that there is a statistically significant increase (SSI) of hazardous constituents below the treatment zone, the Permittee shall notify the Illinois EPA of this finding within seven days, indicating which constituents have shown statistically significant increases. In addition, within ninety (90) days of determining there is a SSI the permittee shall apply for a permit modification to modify the post-closure practices at the facility to maximize the success of degradation, transformation or immobilization processes in the treatment zone.
- 10. The Permittee need not submit the modification request required by Condition IV.D.9 if they successfully demonstrate that a source other than the regulated unit caused the increase or that the increase resulted from an error in sampling, analysis or evaluation within the ninety (90) day time period referenced in Condition IV.D.9 above.

E. <u>INSPECTIONS</u>

- 1. The Permittee shall inspect the vegetative cover system, security system & benchmarks, Stormwater Control System, and Groundwater & Unsaturated Zone Monitoring Systems at the LTF in accordance with the approved permit application. All inspections shall be recorded using the Post-Closure Period Inspection Form in Appendix I.2.2 of the Approved Permit Application. The results of all inspections shall be maintained in the Inspection Log which shall be located in the CITGO Lemont Refinery's Environmental Department File Room.
- 2. The permittee shall inspect the LTF quarterly <u>and</u> within 24 hours of any precipitation event that yields 4 or more inches of rain in a 24 hour period.
- 3. The permittee shall record all repairs made to the LTF that are noted during an inspection in accordance with the Repair Log located in Appendix I.2.2.6 of the Approved Permit Application. All repairs made to the LTF shall be recorded in a log which shall be located in the CITGO Lemont Refinery's Environmental Department File Room.

F. NOTICES AND CERTIFICATION

- 1. After final closure has been certified, the person or office specified in the approved Post-Closure Plan must keep the Post-Closure Care Plan during the remainder of the post-closure period.
- 2. No later than sixty (60) days after completion of the established post-closure care period for each hazardous waste disposal unit, the Permittee shall submit to the Illinois EPA, by registered mail, a certification that the post-closure care for the

hazardous waste disposal unit was performed in accordance with the specifications in the approved Post-closure Plan. The certification must be signed by the owner or operator and a qualified professional engineer registered in the State of Illinois. Documentation supporting the professional engineer's certification must be furnished to the Illinois EPA upon request until the Illinois EPA releases the Permittee from the financial assurance requirements for post-closure care.

SECTION V: GROUNDWATER DETECTION MONITORING PROGRAM

A. <u>SUMMARY</u>

Groundwater parameters monitored in the uppermost aquifer below the facility indicate that, at the present time, no groundwater impacts have occurred. Therefore, a Groundwater Detection Monitoring Program meeting the requirements of 35 Ill. Adm. Code 724.198 shall be implemented at the facility.

The CITGO Lemont Refinery has six (6) existing wells to monitor groundwater in the lower portion of the Lemont Drift aquifer that are utilized for the Groundwater Detection Monitoring Program. The average depth to groundwater in the wells is approximately 74 feet. The Groundwater Detection Monitoring Program will therefore consist of five (5) downgradient wells, one (1) upgradient well and eighteen (18) piezometers for determining groundwater surface elevation only.

B. <u>DEFINITIONS</u>

As used herein, the words or phrases set forth below shall have the following definitions:

- 1. "CITGO" shall refer to CITGO Petroleum Corporation-Lemont Refinery.
- 2. "Site" or "Facility" refers to the location at135th Street & New Avenue, Lemont, County of Will, State of Illinois.
- 3. "Permittee" refers to the Facility.
- 4. "Illinois EPA" refers to the Illinois Environmental Protection Agency.
- 5. "RCRA" shall mean the Resource Conservation and Recovery Act as defined by Section 3.425 of the Environmental Protection Act, 415 ILCS 5/1 (2006).
- 6. "Permit" refers to the RCRA Part B Permit.
- 7. "Point of Compliance" refers to the vertical surface located at the hydraulically downgradient limits of the waste management area (Land Treatment Facility (LTF)) extending down into the uppermost aquifer underlying the regulated unit.
- 8. "Ft-bgs" refers to the number of feet below the ground surface.
- 9. "Ft-MSL" refers to the number of feet below the ground surface referenced to mean sea level.

- 10. "Detected" shall mean a concentration equal to or above the PQL listed in the latest promulgated version of USEPA's "Test Methods for Evaluating Solid Waste, Physical/Chemical Methods (SW-846) for the applicable analytical methods specified in the approved Sampling and Analysis Procedures, which are incorporated by reference in Condition V.H of the Permit.
- 11. "Uppermost Aquifer" refers to the geologic formation nearest the natural ground surface that is an aquifer, as well as lower aquifers that are hydraulically connected with this aquifer in the vicinity of the facility. The uppermost aquifer in the vicinity of the CITGO facility has been identified as the Lemont Drift and consists of sandy silt, silty sand, sand and gravel layers occurring in the lower part of the Lemont Drift and the dolomite bedrock underlying the drift.
- 12. "Stick-up" refers to the height of the referenced survey datum. This point is determined within \pm 0.01 foot in relation to mean sea level, which in turn is established by reference to an established National Geodetic Vertical Datum.

C. IMPLEMENTATION

- 1. The Permittee shall implement the Groundwater Detection Monitoring Program upon the effective date of this Permit. On that date, the groundwater monitoring requirements set forth in this Permit shall supersede those previously established.
- 2. The Permittee shall carry out the detection monitoring specified in this Permit on the groundwater beneath the CITGO Land Treatment Facility in Lemont, Illinois. The uppermost aquifer in the vicinity of the facility has been identified as the sandy silt, silty sand, sand and gravel layers occurring in the lower part of the Lemont Drift and the dolomite bedrock underlying the drift. For the purpose of this Permit and in accordance with the 35 Ill. Adm. Code Part 620 regulations, the uppermost aquifer has been designated Class I: Potable Resource Groundwater.
- 3. The Point of Compliance, defined as the vertical surface located at the hydraulically downgradient limit of the waste management area that extends down into the uppermost aquifer underlying the regulated unit, is delineated by the wells identified as the point of compliance wells in Condition V.D.1 and illustrated in Figure B-9 of the approved Permit Renewal Application.

D. WELL LOCATIONS AND CONSTRUCTION

1. The Permittee shall install and maintain groundwater monitoring wells and piezometers at the locations identified in the table below to allow for the collection of groundwater samples and elevations from the uppermost aquifer. The location

of these wells and piezometers are specified in Figure B-9 of the approved Permit Renewal Application.

IEPA Well <u>No.</u>	Facility Well <u>No.</u>	Well Depth (ft)	Boring Depth Elevation (ft MSL)	Screen Depth Interval (ft)
G01D	- UA-1*	106.90	611.90	92.1 - 102.1
G02D	UA-2**	86.60	605.64	70.0 - 80.0
G03D	UA-3**	89.55	608.18	74.7 - 84.7
G04D	UA-4**	87.00	608.98	72.1 - 82.1
G05D	UA-5**	92.60	602.24	72.1 - 82.1
G06D	UA-6**	96.10	605.55	79.0 - 89.0

- * Denotes Upgradient Wells
- ** Denotes Point of Compliance Wells

Piezometers

P01D	B-1***	111.10	584.10	101.90 - 106.90
P02D	B-2	110.20	586.86	100.90 - 105.90
P03D	B-3	125.00	587.07	116.00 - 121.00
P04D	B-4	99.25	584.09	90.30 - 95.30
P05D	B-5	103.10	585.39	94.77 - 99.77
P06D	B-6	113.10	587.36	103.92 - 108.92
P07D	B-7	117.42	587.70	107.67 - 112.67
P08D	B-8	118.25	589.20	108.51 - 113.51
P09D	B-9	108.70	584.47	99.50 - 104.50
P10D	B-10	122.20	591.26	117.01 - 122.01
P11D	B-11	131.85	589.24	122.92 - 127.92
P12D	B-12	135.10	588.19	126.20 - 131.20
P13D	B-13	128.00	590.26	119.70 - 124.70
P14D	B-14	99.50	586.58	91.00 - 96.00
P15D	B-15	136.93	584.61	127.50 - 132.50
P16D	B-16	124.15	595.48	115.90 - 120.90
P17D	B-17	127.05	599.97	122.90 - 127.90
P18R	B-18R	120.25	586.23	110.00 - 120.00

- *** Denotes Upgradient Piezometer
- 2. Construction of any new monitoring well/piezometer must be at a minimum in accordance with the diagram contained in Attachment B to this Permit unless otherwise approved in writing by the Illinois EPA. Any new monitoring well/piezometer to be installed must be continuously sampled and logged on

Illinois EPA boring logs which can be found at http://www.epa.state.il.us/land/regulatory-programs/permits-and-management/forms/index.html#groundwater-permits.

- 3. The Permittee shall notify the Illinois EPA within thirty (30) days in writing if any of the wells identified in Condition V.D.1 above are damaged or the structural integrity has been compromised. A proposal for the replacement of the subject well shall accompany this notification. The well shall not be plugged until the new well is on-line and monitoring data has been obtained and verified, unless the well is extremely damaged and would create a potential route for groundwater contamination. Prior to replacing the subject well, the Permittee shall obtain written approval from the Illinois EPA regarding the proposed installation procedures and construction.
- 4. Should any well become consistently dry or unserviceable; a replacement well shall be provided within ten (10) feet of the existing well. This well shall monitor the same zone as the existing well and be constructed in accordance with the current Illinois EPA groundwater monitoring well construction standards at the time that the well is replaced. A replacement well which is more than ten (10) feet from the existing well or does not monitor the same geologic zone must be approved by the Illinois EPA and designated as a new well.
- 5. The Permittee shall submit boring logs, construction diagrams and data sheets from installation and development of a new or replacement well to the Illinois EPA at the address below with thirty (30) days of the date that installation of the well is completed. In addition, the Permittee shall submit certification that plugging and abandonment of a well was carried out in accordance with the approved procedures to the Illinois EPA at the address below within thirty (30) days of the date that the well is plugged and abandoned. All information should be submitted to the appropriate State Agencies.

Illinois Environmental Protection Agency Bureau of Land - #33 Permit Section 1021 North Grand Avenue East Post Office Box 19276 Springfield, Illinois 62794-9276

- 6. All wells/piezometers shall be equipped with protective caps and locks.

 Monitoring wells or piezometers located in high traffic areas must protected with bumper guards.
- 7. All groundwater monitoring wells and piezometers not utilized in the groundwater monitoring system, but retained by the facility, must be constructed and maintained in accordance with 77 Ill. Adm. Code 920 regulations. Monitoring

wells and piezometers that are improperly constructed must be abandoned in accordance with Condition V.D.3.

E. MONITORING PARAMETERS

1. The Permittee shall determine groundwater quality at each groundwater monitoring well identified in Condition V.D.1, at both the upgradient and point of compliance locations, semi-annually during the active life of the four areas in the hazardous waste land treatment facility (D81) (including closure and post-closure care period). Samples collected during the semi-annual sampling events of each year shall be analyzed for the constituents below:

Semi-Annual Groundwater Sampling

Field Parameters	Storet	<u>Units</u>
pH	00400	Standard Units
Specific Conductance	00094	micromhos/cm
Temperature of Water Sample	00011	(°F)
Turbidity	45626	NTUs
Depth to Water (below land surface)	72019	Feet
Depth to Water (below measuring point)	72109	Feet
Elevation of Groundwater Surface	71993	 Ft-MSL
Elevation of Bottom of Well #	72020	Ft-MSL
Elevation of Measuring Point (top of casing)##	72110	Ft-MSL

Shall be determined during the second sampling event each year.

Shall be surveyed once every five (5) years, at the request of the Illinois EPA, or

Shall be surveyed once every five (5) years, at the request of the Illinois EPA, or whenever the elevation changes as required by Condition V.G.2.

Indicator Parameters	<u>Storet</u>	<u>Units</u>
TOX	78115	μg/L
TOC	00680	μg/L
Arsenic (dissolved)	01000	μg/L
Selenium (dissolved)	01145	μg/L

NOTE: All parameters with the "(dissolved)" label to the right shall be determined using groundwater samples which have been filtered through a 0.45 micron filter and used for statistical purposes along with TOX and TOC. Should a parameter be detected in groundwater and found to be statistically above background, the subsequent monitoring event must include total (unfiltered) analysis and a comparison to the appropriate 35 Ill. Adm. Code 620, Class I, Groundwater Quality Standard must then take place.

2. Alternate concentration limits may be established in accordance with 35 Ill. Adm. Code 724.194(b) where the Permittee can determine a constituent will not pose a

- substantial hazard to human health or the environment. The alternate concentration limits proposed by the facility must be approved by the Illinois EPA.
- 3. The Permittee shall establish background values in accordance with the procedures specified in Section E of the approved Permit Renewal Application as well as the following procedures:
 - a. Background groundwater quality for a monitoring parameter or constituent shall be based on data from four (4) consecutive sampling events of the upgradient groundwater monitoring well for two (2) years.
 - b. In developing the data base used to determine a background value for each parameter or constituent, the Permittee shall take a minimum of four replicate samples from each upgradient well during each of the four (4) semi-annual background sampling events. An equal number of replicate samples will be taken from each upgradient well to ensure equal weightings in statistics.
 - c. For those monitoring parameters or constituents not detected above the practical quantitation limit (PQL) during background gathering, the PQL shall be the established background value.

F. <u>DETECTION MONITORING PROGRAM</u>

- 1. The Permittee shall determine groundwater quality at each monitoring well identified in Condition V.D.1 semi-annually during the active life of the regulated unit (including the closure and post-closure care periods). The Permittee shall express the groundwater quality at each monitoring well in a form necessary for the determination of statistically significant changes (i.e. means, variances, etc.).
- 2. The Permittee shall determine the groundwater flow rate and direction in the uppermost aquifer semi-annually, and report at least annually from monitoring wells identified in Condition V.D.1.
- 3. The Permittee shall determine whether there is a statistically significant increase, (or decrease in the case of pH) over the background values established for each parameter identified in Condition V.E.1 each time groundwater quality is determined at the point of compliance. In determining whether such a change has occurred, the Permittee must compare the groundwater quality at each monitoring well identified in Condition V.D.1 to the background value derived in accordance with the statistical procedures specified in Section E of the approved Permit Renewal Application.

G. GROUNDWATER ELEVATION

- 1. The Permittee shall determine the groundwater surface elevation referenced to mean sea level (MSL) at each well each time groundwater is sampled in accordance with Condition V.J.3.
- 2. The Permittee shall determine the surveyed elevation of "stick-up" referenced to MSL when the well is installed (with as-built diagrams) and every five (5) years, or at the request of the Illinois EPA, or whenever the elevation changes in accordance with Condition V.J.5.
- 3. Elevation, as referenced to MSL, of the bottom of each monitoring well (Storet 72020), is to be reported at least annually. The mandatory measurement shall be taken during the second semi-annual sampling event each year.

H. SAMPLING AND ANALYTICAL PROCEDURES

- 1. The Permittee shall use the techniques and procedures described in Section E of the approved Permit Renewal Application, except as modified below, when obtaining and analyzing samples from the groundwater monitoring wells described in Condition V.D.1:
 - a. Samples shall be collected using the techniques described in Section E of the approved Permit Renewal Application.
 - b. Samples shall be preserved and shipped (when shipped off-site for analysis) in accordance with the procedures specified in Section E of the approved Permit Renewal Application.
 - c. Samples shall be analyzed in accordance with the procedures specified in Section E of the approved Permit Renewal Application.
 - d. Samples shall be tracked and controlled using the chain of custody procedures specified in Section E of the approved Permit Renewal Application.

I. <u>STATISTICAL PROCEDURES</u>

When evaluating the monitoring results in accordance with Condition V.F, the Permittee shall use the following procedure:

1. The statistical methods to be used shall be as specified in Section E of the approved Permit Renewal Application.

- 2. Analytical data shall be compared to the parameter background values established in accordance with Section E of the approved Permit Renewal Application.
- 3. For Constituents which have not been detected in the groundwater, the practical quantitation limit (PQL) shall be used as the background concentration.

J. REPORTING AND RECORDKEEPING

- 1. The Permittee shall enter all monitoring, testing, and analytical data obtained in accordance with Condition V.E, V.F, V.G, V.H and V.I in the operating record. The data must include all computations, calculated means, variances, t-statistic values and t-statistic results or results of statistical test that the Illinois EPA has determined to be equivalent.
- 2. Samples collected to meet the requirements of the groundwater monitoring program described in Conditions V.E, V.F, V.G, and V.I shall be collected and reported, as identified in the table below. All additional information required by the groundwater monitoring program (as specified in Conditions V.E, V.F, V.G and V.I) shall also be submitted to the Illinois EPA at the address listed in Condition V.D.5 in accordance with this schedule.

Samples to be	Results Submitted	
Collected During	to the Illinois EPA	
The Months of	by the Following	<u>Parameters</u>
April - June	July 15	Condition V.E.1
October - December	January 15	Condition V.E.1

- 3. Groundwater surface elevation data, measured pursuant to Condition V.G.1 shall be collected semi-annually and submitted to the Illinois EPA according to the schedule in Condition V.J.2.
- 4. The Permittee shall report the groundwater flow rate and direction in the uppermost aquifer as required by Condition V.F.2 during the second semi-annual sampling event of the year.
- 5. The Permittee shall report the surveyed elevation, as required by Condition V.G.2, of the top of the well casing "stick-up", referenced to MSL in accordance with the following schedule:
 - a. For wells identified in Condition V.D.1, every five (5) years (during the second semi-annual sampling event), <u>or</u> at the request of the Illinois EPA, or whenever the elevation changes.

- b. For any new wells, at the time of installation and reported in the as-built diagrams, subsequent measurements shall be made every five (5) years (during the second semi-annual sampling event), or at the request of the Illinois EPA, or whenever the elevation changes.
- 6. Elevation of the bottom of each monitoring well identified in Condition V.D.1, as referenced to MSL, is to be reported at least annually. This measurement shall be taken during the second semi-annual sampling event (Storet 72020) each year in accordance with Condition V.G.3.
- 7. Information required by Conditions V.J.2, V.J.3, V.J.5 and V.J.6 must be submitted in an electronic format. The information is to be submitted, as fixed-width text files formatted as found in Attachment B, in accordance with the schedule found in Condition V.J.2 above. Additional guidance regarding the submittal of the information in an electronic format can be found at http://www.epa.state.il.us/land/regulatory-programs/electronic-intro.html.
- 8. The Permittee shall submit a completed "RCRA Facility Groundwater, Leachate and Gas Reporting Form" (LPC-592) as a cover sheet for any notices or reports required by the Permit for identification purposes. Only one copy of the LPC-592 must accompany your submittal. However, the Permittee must submit one (1) original and (excluding the groundwater and leachate monitoring results submitted in an electronic format) a minimum of two (2) copies of each notice or report you submit to the Illinois EPA. The form is not to be used for Permit modification requests.
- 9. The Permittee shall report all information to the Illinois EPA in a form which can be easily reviewed. All submittals must contain tables of data drawings and text (as necessary) to accurately describe the information contained in the submittal.
- 10. If the Permittee determines, pursuant to Condition V.F.3 that there is a statistically significant increase for any of the parameters specified in Condition V.E.1 at any monitoring well at the point of compliance, the Permittee shall:
 - a. Notify the Illinois EPA in writing indicating what parameters and wells have shown statistically significant increases and provide all statistical calculations. This notification shall be submitted to the Illinois EPA within seven (7) days of the date that the increases are discovered.
 - b. Sample the groundwater in all wells listed in Condition V.D.1 and determine the concentration of all constituents identified in Appendix I of 35 Ill. Adm. Code 724 such that the results will accompany the permit modification required by Condition V.J.10.d below.

- c. For any Appendix I compounds found in the analysis pursuant to this condition, the Permittee may resample within one month and repeat the analysis for those compounds detected. If results of the second analysis confirm the initial results, then these constituents will form the basis for compliance monitoring. If the Permittee does not resample for the compounds pursuant to this condition, the hazardous constituents found during the initial Appendix I analysis will form the basis for compliance monitoring.
- d. Submit to the Illinois EPA an application for a permit modification to establish a compliance monitoring program meeting the requirements of 35 Ill. Adm. Code 724.199. The application shall be submitted to the Illinois EPA within ninety (90) days of the date that the increase is discovered. Furthermore, the application must include the following information:
 - i. An identification of the concentration of any 35 Ill. Adm. Code 724, Appendix I constituents found in the groundwater at each monitoring well at the point of compliance;
 - ii. Any proposed changes to the groundwater monitoring system at the facility necessary to meet the requirements 35 Ill. Adm. Code 724.199;
 - iii. Any proposed changes to the monitoring frequency, sampling and analysis procedures, or methods or statistical procedures used at the facility necessary to meet the requirements of 35 Ill. Adm. Code 724.199; and
 - iv. For each hazardous constituent found at the compliance point, a proposed concentration limit under 35 Ill. Adm. Code 724.194(a)(1) or 724.194(a)(2), or a notice of intent to seek an alternate concentration limit for a hazardous constituent under 35 Ill. Adm. Code 724.194(b).
- e. Submit to the Illinois EPA a corrective action feasibility plan to meet the requirements of 35 Ill. Adm. Code 724.200 unless the concentrations of all hazardous constituents identified under Condition V.J.10.b above are listed in 35 Ill. Adm. Code 620.410 and their concentrations do not exceed the respective Groundwater Quality Standards or the Permittee has sought an alternate concentration limits under Condition V.J.10.d.iv above for every hazardous constituent identified under Condition V.J.10.b above. This plan must be submitted to the Illinois EPA within 180 days of the date the increase is discovered.

- f. Submit to the Illinois EPA all data necessary to justify any alternate concentration limit for a hazardous constituent sought under Condition V.J.10.d.iv above. This plan must be submitted to the Illinois EPA within 180 days of the date the increases is discovered.
- 11. If the Permittee determines, pursuant to Condition V.F.3, that there is a statistically significant increase above the background values for the parameters specified in Condition V.E.1, the Permittee may demonstrate that a source other than a regulated unit caused the increase or that the increase resulted from error in sampling, analysis, or evaluation. The Permittee shall submit a permit modification application in accordance with Condition V.J.10.d unless the demonstration successfully shows that a source other than the regulated unit caused the increase or that the increase resulted from errors in sampling, analysis or evaluation and the Illinois EPA concurs.

To make this demonstration, the Permittee shall:

- a. Notify the Illinois EPA in writing that they intend to make this demonstration. This notification must be submitted to the Illinois EPA within seven (7) days of the date that the increase is discovered.
- b. Submit a report to the Illinois EPA which demonstrates that a source other than a regulated unit caused the increase, or that the increase resulted from error in sampling, analysis, or evaluation. This report must be submitted within ninety (90) days of the date that the increase is discovered.
- c. Submit to the Illinois EPA an application to make any appropriate changes to the Groundwater Detection Monitoring Program. This application must be submitted within ninety (90) days of the date that the increase is discovered.
- d. Continue to monitor in accordance with the detection monitoring program at the facility.

K. <u>REQUEST FOR PERMIT MODIFICATION</u>

- 1. If the Permittee determines that the Groundwater Detection Monitoring Program no longer satisfies the requirements of 35 Ill. Adm. Code 724.198, the Permittee must, within ninety (90) days, submit an application for a permit modification to the Illinois EPA to make any appropriate changes to the program which will satisfy the regulations.
- 2. Conditions in this section of the Permit may be modified in accordance with 35 Ill. Adm. Code 705.128 if there is cause for such modification, as defined in 35 Ill.

Adm. Code 702.184. Causes for modification identified in this section include, but are not limited to, alterations to the permitted facility, additional information which would have justified the application of different permit conditions at the time of issuance, and new regulations.

SECTION VI CORRECTIVE ACTION ACTIVITIES

A. INTRODUCTION

- 1. In accordance with Section 3004 of RCRA and 35 IAC 724.201, CITGO shall institute such corrective action as necessary to protect human health and the environment from all releases of hazardous wastes or hazardous constituents listed in Appendix H of 35 IAC Part 721 from any solid waste management unit (SWMU) at its Refinery in Lemont, Illinois. For the purpose of this permit, the constituents of concern being addressed under this section are the Modified Skinner List of constituents provided in the approved permit Renewal Application. Corrective action at this facility must be conducted by:
 - a. conducting a RCRA Facility Investigation (RFI) to determine whether releases of hazardous wastes and hazardous constituents have occurred from any solid waste management unit (SWMU) at its facility, and if so, the nature and extent of the release(s); and
 - b. based upon the results of the RFI, developing and implementing a Corrective Measures Program which describes the necessary corrective actions which will be taken. The required corrective actions shall be those actions necessary to protect human health and the environment from all releases of hazardous wastes or hazardous constituents, listed in aforementioned Modified Skinner List of constituents for the facility, above site-specific cleanup objectives from any of the SWMUs.
- 2. This facility's original RCRA permit was issued by Illinois EPA on September 18, 1997 (Effective Date: October 23, 1997). Section IV of the permit contained corrective action requirements for the solid waste management units (SWMUs) listed in Section VI.B below at the facility.
- 3. The facility has completed a substantial amount of investigation and, as necessary, remediation at these SWMUs. This permit summarizes the corrective action activities completed to date and identifies the efforts which must still be carried out to complete corrective action for the SWMUs of concern at the facility.
- 4. Unless there is a desire to modify specific requirements set forth in this Section, information submitted to Illinois EPA regarding the corrective action requirements set forth in this Section is not a request to modify this permit nor subject to the requirements of 35 Ill. Adm. Code 703, Subpart G.

- 5. The Permittee must provide corrective action, as appropriate, for any future releases from SWMUs present at the facility.
- 6. The requirements of 35 Ill. Adm. Code 742 must be met, as appropriate, in determining remediation objectives for corrective action activities. In addition, the requirements of 35 Ill. Adm. Code 620 and 724 must be met during implementation of the RCRA corrective action program at this facility.
- 7. Illinois EPA's final actions on all corrective action-related submittals made by the Permittee are subject to the appeal provisions of Section 39 and 40 of the Illinois Environmental Protection Act.
- 8. The Permittee must conduct and complete Inspection and Maintenance Program for the storm water sewer system, and the process wastewater sewer system in accordance with the approved plans.

B. CONDUCTING THE RCRA FACILITY INVESTIGATION

The Permittee must conduct a RCRA Facility Investigation (RFI) to determine the nature and extent of releases of hazardous wastes and hazardous constituents from various SWMUs at the subject facility. In general, this investigation has been or is being done on a SWMU by SWMU basis. To date, CITGO has conducted a substantial amount of investigation at the SWMUs of concern at this facility.

The RFI for each SWMU is carried out in two phases. Each phase will provide for a more detailed evaluation of each Solid Waste Management Unit identified. Phase I will define whether a release from the SWMU has occurred to the environmental media of concern. Phase II will define the nature and extent of any release from the SWMU to soil, groundwater, and surface water/sediments. A more detailed discussion of the goals of each phase of the RFI is presented in Section II of Attachment C-1. The Scope of Work for the RFI is provided as Attachment C-1 to the Permit.

- 1. CITGO has conducted a substantial amount of investigative and remedial effort to date. A summary of these activities, based on Illinois EPA's letters approving plans/reports associated with these efforts is contained in Attachment C-2 of this Permit.
- 2. Based upon the results of the RCRA Facility Assessment which was conducted by the Illinois EPA for this facility, the SWMUs identified in the following table must be evaluated in the RFI for potential releases to certain environmental media of concern also identified in the table. The SWMUs have been grouped into two categories (Group 1 and Group 2) based on their estimated potential risk to human health and the environment. The Group 1 SWMUs have either had known releases in the past or pose the highest potential for releases that could impact the

environment. Group 2 SWMUs are not known to have had a release and have a low potential for impact. In addition, all new SWMUs discovered during the course of carrying out this corrective action program are added to Group 2 (please note that this is <u>not</u> a complete listing of SWMUs at the subject facility).

In addition to identifying the SWMUs which must be evaluated in an RFI, the table below identifies the current status of corrective efforts at each SWMU (see the "CA Status" column in the table). Furthermore, the table identifies those SWMUs where groundwater must be addressed as part of the corrective action program (see "Need to Address GW" column). Note that following abbreviations are used in the table below:

CM = Corrective Measures

CMP = Corrective Measures Plan

ELUC = Environmental Land Use Control

CWPP = Construction Worker Precaution Plan

NFA = No Further Action

TBD = To Be Determined

I/C= Industrial/Commercial

Group I

SWMU	Name	CA Status	Need to Address GW?
2 A-E	Former Process Wastewater Line (Big Inch)	NFA for soil only issued on 1/31/06. A supplemental investigation report received on 11/23/09 and under IEPA review (CA-134).	Yes
3	Former North Plant API Separator and Above Ground Corrugated Plate Separator	NFA for soil only issued on 8/24/05.	Yes
4	Hot Oil Line, Seneca Petroleum Storage Tank	NFA issued on 4/12/07.	No
7	Interceptor Trench; Canal Dock	RFI Phase II Workplan approved on 4/25/08. IEPA verbally approved supplemental workplan on 7/8/10. CMP received on 10/25/10.	TBD
11A	Recycle Tank; 11A - Mobil Interface Tank 436	Phase II RFI Report received on 4/17/09 and under IEPA review (CA-123).	TBD

SWMU	Name	CA Status	Need to Address GW?
11B	Recycle Tank; 301 Tank	Phase II RFI Report received on 4/17/09 and under IEPA review (CA-124).	TBD
12	Tank 201 and Proximate Area	NFA on soil only issued on 10/4/10 (CA-126 & 128); ELUC required for I/C use.	Yes
17	Intermittent Stream/Stormwater Conveyance	NFA issued on12/17/07; area access control required.	No
19D	Former Sludge Drying Areas	Phase II RFI/CM report approved and NFA for soil only issued on 12/18/08; ELUC required for I/C use.	Yes (as part of GMZ)
21	Vertical Oil Storage Tanks at the Stormwater Basin (SWB)	Phase I Report approved and NFA issued on 4/12/07; ELUC required for I/C use.	No
24	Former API Separator	Determination of further CA work be completed as a part of the facility's GMZ made on 8/24/05.	Yes (as part of GMZ)
30	Former Primary Light Oil (PLO) Underground Soil/Groundwater	Phase II RFI Workplan approved on 4/25/08. CMP received on 8/4/09 and under IEPA review (CA-125).	TBD
31A	Former Underground Storage Tanks located at Active Solvent Loading Rack Area	NFA for Soil only issued on 12/17/07; ELUC required for I/C use, engineered barrier and CWPP. Draft ELUC was received on 5/23/08 and under IEPA review (CA-98).	Yes
31B-E	Former Underground Storage Tanks located at Former Service Station	NFA for soil only issued on 8/24/05. Draft ELUC was received on 5/28/08 and under IEPA review (CA-99).	Yes

SWMU 32	Name Former Process Blending UST at the Process Blend Center	CA Status NFA for soil only issued on 7/17/06.	Need to Address GW? Yes
33	Groundwater Monitoring Zone (GMZ) around beneath the storm water basins	GMZ Re-evaluation approved on 5/17/07. Continued GMZ operation is required.	Yes (as GMZ)
34	French Drain System	NFA on Soil only issued on 6/16/09; ELUC required for I/C and CWPP. A revised CMP received to request a modification to the ELUC requirement on 4/8/10 and under IEPA review (CA-138).	Yes
36	Former USTs Located at South Plant Maintenance Area	Phase I RFI report approved and NFA issued on 7/17/06.	No
37	Former USTs Located near WWTP Outfall to Chicago Sanitary & Ship Canal	Phase I RFI report approved and NFA issued on 7/17/06.	No

Group II

<u>SWMU</u>	Name	CA Status	Need to Address GW?
1	Former Empty Drum Storage Area	NFA issued on 6/1/04.	No
5	Former Dump Area for Lime Sludge Seneca Tank Location	Phase I RFI report received on 10/2/08 and under IEPA review (CA-103).	TBD
10	North Plant Heat Exchanger Bundle Cleaning Pad	Phase I RFI report received on 10/2/08 and under IEPA review (CA-104).	TBD
13	Sludge Drying Area	Phase I RFI report received on 10/2/08 and under IEPA review (CA-105).	TBD

***************************************			Need to
SWMU	Name	CA Status	Address GW?
15A-B	Wastewater Treatment Sludge Decant Basin within Land Treatment Facility	Phase I RFI report received on 10/2/08 and under IEPA review (CA-106).	TBD
16	Sludge Application Area	NFA issued on 11/27/06.	No
18	Waste Staging Area	Phase I RFI report received on 10/2/08 and under IEPA review (CA-107).	TBD
19A	Former Sludge Drying Area	Phase I RFI report received on 10/2/08 and under IEPA review (CA-107).	TBD
19B	Former Sludge Drying Area	CM completion report received on 11/13/09 and under IEPA review (CA-130).	TBD
19C	Former Sludge Drying Area	Phase I RFI report received on 10/2/08 and under IEPA review (CA-108).	TBD
20	Active Drum Staging Area	Phase I RFI report received on 10/2/08 and under IEPA review (CA-109).	TBD
25A	Heat Exchanger Bundle Cleaning Pad	NFA issued on 6/16/09; closure activities upon closure of the unit. ELUC required for I/C use.	TBD upon Closure
25B	Heat Exchanger Bundle Cleaning Pad	Phase I RFI report received on 10/2/08 and under IEPA review (CA-110).	TBD upon Closure
25C	Supplementary Heat Exchanger Bundle Cleaning Pad Cleaning Building	Phase I RFI report received on 10/2/08 and under IEPA review (CA-111).	TBD
35	Red Dye Spill Area	Phase I RFI report received on 10/2/08 and under IEPA review (CA-112).	TBD

1			Need to
SWMU	Name	CA Status	Address GW?
43A	Suspected Spill Location Along the Product Pipe Line: Canal Dock Piping	Phase I RFI report received on 4/17/09 and under IEPA review (CA-122).	TBD
43B	Suspected Spill Location Along the Product Pipe Line: Primary Light Oil Pump	Phase I RFI report received on 4/17/09 and under IEPA review (CA-122).	TBD
43C	Suspected Spill Location Along the Product Pipe Line: Refinery Flare	Phase I RFI report received on 4/17/09 and under IEPA review (CA-122).	TBD
43D	Suspected Spill Location Along the Product Pipe Line: Barge	Phase I RFI report received on 4/17/09 (CA-122).	TBD
43E	Suspected Spill Location Along the Product Pipe Line: Above Ground Tank	Phase I RFI report received on 4/17/09 (CA-122).	TBD
43F	Suspected Spill Location Along the Product Pipe Line: Lift Station Pump	Phase I RFI report received on 4/17/09 and under IEPA review (CA-122).	TBD
43G	Suspected Spill Location Along the Product Pipe Line: Process Drain System	Phase I RFI report received on 4/17/09 and under IEPA review (CA-122).	TBD
43H	Suspected Spill Location Along the Product Pipe Line: Pipeline Primary Light Oil	Phase I RFI report received on 4/17/09 (and under IEPA review CA-122).	TBD
43I	Suspected Spill Location Along the Product Pipe Line: Condenser (Sulfur Dioxide)	Phase I RFI report received on 4/17/09 and under IEPA review (CA-122).	TBD
43J	Pipeline Release Near Tanks 92 and 108	NFA for Soil only was issued on 2/24/10.	Yes
44	Spill at the Gasoline Transfer Line	Phase I RFI report received on 10/2/08 and under IEPA review (CA-113).	TBD

			Need to
<u>SWMU</u>	<u>Name</u>	<u>CA Status</u>	Address GW?
45	Contaminated Fill Area near Canal	Newly discovered SWMU.	TBD
	Dock	SWMU Assessment Report	
		was received on 8/31/10.	

- 3. The Groundwater Management Zone (GMZ) Monitoring Program and Site-Wide Groundwater Monitoring Program are currently being conducted as part of the Corrective Action Program.
 - a. The GMZ was originally approved by the Illinois EPA on April 11, 1994 and was identified as SWMU 33 in the RCRA Permit. The current GMZ program implemented at a portion of the south plant includes: 14 monitoring wells, 15 bedrock piezometers, two staff gauges located in the Illinois and Michigan (I&M) Canal, and the Green Coke Storage Area (GCSA) sump (which controls the groundwater by inward gradient control pumping). The GMZ monitoring requirements currently include:
 - (1) Semi-annual groundwater and surface water elevation measurements;
 - (2) Semi-annual groundwater sampling and analysis for VOCs;
 - (3) No sampling of monitoring wells in which there is a presence or evidence of LNAPL; and
 - (4) Semi-annual and annual monitoring reports submitted to Illinois EPA.

Note that any changes to the above monitoring requirements are subject to Illinois EPA's approval under the Corrective Action Program.

- b. The Site-Wide Groundwater Monitoring Program consists of a network of wells used to determine the quality of groundwater as it relates to multiple SWMUs. CITGO has proposed to address the groundwater exposure route at SWMUs that are required to address groundwater contamination during Phase I/II RFI at each SWMU through proposed Site-Wide Groundwater Monitoring Program.
- c. CITGO's "Site-Wide Groundwater Monitoring and Investigation Workplan" submitted to Illinois EPA on January 31, 2007 was approved with conditions and modifications on May 31, 2007.

- d. CITGO's Current Conditions Report and Proposed Workplan for Future Groundwater Management was submitted to Illinois EPA on September 15, 2008. This workplan was approved with conditions and modifications on April 26, 2010 (Log No. B-162-CA-102). This letter approved the sitewide groundwater management approach.
- e. It is appropriate to address groundwater contamination at the identified SWMUs required to address groundwater, through the proposed site-wide groundwater management approach. However, should the facility choose to obtain an NFA for groundwater on SWMU by SWMU basis, the facility will be required to address groundwater contamination at each identified SWMU and the Illinois EPA will make the NFA determinations on a SWMU by SWMU basis.
- 4. CITGO has been conducting inspection and maintenance work at Process Sewers (SWMU No. 38), Storm Sewers (SWMU No. 39), and Open Flow Ditches (SWMU No. 40) in accordance with a workplan approved by Illinois EPA on February 21, 2003 as required in Section VI.D of this permit. As a result of the on-going investigation, some of the segments/structures of the investigated Process and Storm Sewers were determined to require further corrective action investigation. The table below identifies those locations which, to date, require a more formal investigation and have thus determined to be SWMUs. Note that this is not the complete list of the defects which require further investigation. The facility must update the list of Storm and Process Sewer related SWMUs in its annual sewer report required in Section VI.D below.

SWMUs Identified from RCRA Sewer Investigation

SWMU 38 – Process Sewer

38a	Process Sewer Line Segment: 31-MH8-DP-01 to 31-MH8-DP-02	NFA was issued on 7/8/10; ELUC required for I/C and GW restriction.
38b	Process Sewer Line Segment: 31-MH5-DP-03 to 31-MH5-DP-01	NFA on soil only issued on 10/4/10 (CA-126 & 128); ELUC required for I/C use.
38c	Process Sewer Structure: 31-MH5-DP-01	NFA on soil only issued on 10/4/10 (CA-126 & 128); ELUC required for I/C use. Groundwater must be investigated.
38d	Coker Road Process Sewer- (7) Line Segments: 52-LS51-DP-01 to 52-MH34-DP-01	Phase I RFI/Closure report received on 6/7/10 and under IEPA review (CA-141).

SW	MI	39.	– Storm	Sewer
DYY.	IVI U	フソ・	– Storm	sewer

39a	Storm Sewer – Line Segment: 130-MH79-DRC-01 to 130-MH75-DRC- 02	Phase II RFI Report received on 11/30/09 and under IEPA review (CA-131).
39b	Storm Sewer – Line Segment: 130-MH75-DRC-05 to 130-MH75-DRC- 32; Structure: 130-MH75-DRC-05	Phase II RFI Report received on 11/30/09 and under IEPA review (CA-132).

- 5. CITGO will be required to establish environmental land use controls (ELUC) for most of the SWMUs listed in Condition VI.B.2 above. All ELUC required must be developed and recorded in accordance with 35 Ill. Ad, Code 742 Subpart J and the Illinois EPA approval letters regarding RCRA corrective action.
- 6. The RFI has been initiated at all SWMUs; status of the RFI to date for each SWMU is described in the table provided in Conditions VI.B.2 and 4 above.
 - In general, following the submittal of the RFI Phase I/II report, the Illinois EPA's BOL will review the submitted data. The Illinois EPA's BOL will offer CITGO the opportunity to meet with Illinois EPA staff to discuss the results of the review prior to finalization of the review comments. The Illinois EPA's BOL will then notify CITGO in writing of the results of the review. This notification will discuss the status of each of the SWMUs evaluated as part of the Phase I/II RFI.
 - a. If the Illinois EPA's BOL determines, based upon the data provided within and obtained from the Phase I/II Workplan for each SWMU investigated, that (1) there is no potential for release from that SWMU to the environmental media of concern and (2) there has been no release of hazardous wastes or hazardous constituents to the environmental media of concern from that SWMU, then no further action will be required for that SWMU.
 - b. If the Illinois EPA's BOL determines, based on data from the Phase I/II RFI for each SWMU investigated, that (1) there has been a release to any environmental media of concern, or (2) there currently is a release to any environmental media of concern, then the nature and extent of the release must be defined. If the Group 1 Phase I/II RFI did not adequately define nature and extent to the satisfaction of the Illinois EPA, then a Phase II (or supplemental Phase II) investigation will be required as discussed in 6.c below.

- c. If the results of the Phase I/II RFI are inconclusive or incomplete, a Phase II (or Supplemental Phase II) investigation must be conducted by CITGO. This investigation shall be conducted to collect additional information so that a conclusive determination can be made regarding a current/past release from a SWMU. This investigation shall be carried out in accordance with the RFI guidance provided above.
- d. The final letter sent to the facility conveying the results of the review will:
 - 1. Identify those SWMUs for which no further investigation is needed;
 - 2. Identify those SWMUs for which no further action is required;
 - 3. Identify those SWMUs that must be further investigated as part of a Phase II or a Supplemental Investigation to determine the rate and extent of migration of hazardous waste or hazardous constituents and the concentrations of the hazardous waste or hazardous constituents in the environmental media potentially impacted by a release from the SWMU;
 - 4. Identify, for each SWMU requiring further investigation, the associated environmental media which must be further investigated;
 - 5. Identify those SWMUs and associated environmental media for which corrective measures are required.
- e. Illinois EPA action on the final Phase I/II RFI report and proposed Release Criteria will be subject to the appeal provisions of Sections 39(a) and 40(a) of the Illinois Environmental Protection Act.
- 7. If CITGO is notified in writing in accordance with Condition B.6 that any SWMUs identified during the Phase I/II or Supplemental Phase II RFI as needing further investigation, then CITGO must develop and submit a Phase II RFI Workplan. Phase II of the RFI shall focus on determining the rate and extent of migration of hazardous waste or hazardous constituents and the concentrations of the hazardous waste or hazardous constituents in any affected media (soil, groundwater, or surface water). Such a workplan must be submitted no more than 90 days after the facility is notified in writing in accordance with Condition B.6 above. The Scope of Work for Phase II or Supplemental Phase II of the RFI is contained in Attachment C-1 to the Permit.
- 8. The Illinois EPA's BOL will approve, approve with modifications, or disapprove the RFI Phase II or Supplemental Phase II workplan in writing and provide comments regarding the required corrections or modifications.

- a. Within 60 days of the receipt of such comments, CITGO must modify the plan or submit a new plan for the Illinois EPA's BOL approval.
- b. Within 60 days of, or by a due date specified by, the Illinois EPA's approval of the workplan, CITGO shall begin implementing the plan according to the terms and schedule established in the workplan.
- c. Illinois EPA action on the workplan will be subject to the appeal provisions of Sections 39(a) and 40(a) of the Illinois Environmental Protection Act.
- 9. CITGO must submit a report documenting the efforts carried out in accordance with the approved RFI Phase II or Supplemental Phase II Workplan and the schedule established within the workplan. This report must be prepared in a manner which summarizes the overall Phase II RFI efforts and specific information required to be obtained in the Phase II RFI Workplan as described in Attachment C-1. F.
- 10. Following submittal of the RFI Phase II or Supplemental Phase II report, the Illinois EPA's BOL will review the data and notify CITGO in writing of the results.
 - a. If the Illinois EPA determines that the nature and extent of hazardous waste or hazardous constituents from a SWMU release, above the Release Criteria, has not been adequately defined during the Phase II investigation, then CITGO must conduct a supplemental investigation.
 - b. If the Illinois EPA's BOL determines that further investigation is not required, based on data obtained from the RFIs, the Illinois EPA reserves the right to require that corrective measures be conducted for the SWMUs of concern to address releases identified through the Phase I, Phase II, and supplemental investigations.
 - c. If the Illinois EPA determines that (1) there has not been a release of hazardous waste or hazardous constituents from a SWMU to the groundwater (2) but there is a potential for future releases of hazardous waste or hazardous constituents from a SWMU to the groundwater, then the Illinois EPA may require a longer term groundwater monitoring program at any SWMU where substantial soil contamination exists (as determined by the Illinois EPA), or at any SWMU which would meet the definition of a land disposal unit. This need for additional monitoring is dependent on the corrective action taken in response to the waste and/or contaminated soil present at the SWMU.
 - d. The Illinois EPA's response to the Phase II or Supplemental Phase II report will:

- i. Identify those SWMUs investigated as part of the Phase II RFI for which no further action is required.
- ii. Identify those SWMUs investigated as part of the Phase II RFI for which no further investigation is needed.
- iii. Identify those SWMUs investigated as part of the Phase II RFI for which supplemental investigations must be conducted.
- iv. Identify, for each SWMU requiring further investigation, the associated environmental media which must be investigated further and the information to be obtained during the investigation.
- v. Identify those SWMUs and associated environmental media for which corrective measures are required.
- vi. Identify those SWMUs for which longer-term monitoring is required.
- e. Illinois EPA action on the final RFI Phase II or Supplemental Phase II report will be subject to the appeal provisions of Sections 39(a) and 40(a) of the Illinois Environmental Protection Act.

C. CORRECTIVE MEASURES REQUIREMENTS

If it has been determined from the Phase I/II RFI that corrective measures must be taken in response to releases from any SWMU that have not been addressed by approved interim measures, then CITGO shall implement a Corrective Measures Program (CMP). The CMP is divided into five phases:

- 1. Phase I should consist of (1) development of final cleanup objectives, (2) discussion of those SWMUs requiring corrective measures and (3) a preliminary evaluation of the corrective action alternatives available for each SWMU requiring corrective action.
- 2. Phase II should consist of (1) detailed evaluation of the corrective measure alternatives for each SWMU and (2) development of a conceptual design of the corrective action chosen for each SWMU including remedial system(s) and/or institutional controls.
- 3. Phase III should consist of development and submission of the final design plans for the corrective action and should include the preparation of the operation and maintenance plans.

- 4. Phase IV is the actual construction/installation of the selected corrective measure.
- 5. Phase V is operation, maintenance, and monitoring of the selected corrective action to ensure it is properly protecting human health and the environment.

Attachment D describes the requirements for each Phase of the CMP. The Illinois EPA's decision to approve or disapprove of any element of the CMP described in Attachment D shall be subject to the appeal provisions of Sections 39(a) and 40(a) of the Illinois Environmental Protection Act.

The Phase I CMP report must be submitted within 120 days after receipt of the notification from the Illinois EPA that corrective measures are necessary to protect human health and the environment from observed releases from SWMUs at the facility. The purpose of the CMP is to describe the procedures which will be followed in providing corrective action at each SWMU requiring corrective measures. The proposed corrective measures must be sufficient to protect human health and the environment from the observed release. Subsequent submittals associated with the corrective measures process must be submitted to the Illinois EPA in accordance with the schedule in the Phase I CMP Report.

D. <u>SEWER INSPECTION AND MAINTENANCE PLAN</u>

- 1. CITGO's workplan providing an inspection and Maintenance Plan for the following SWMUs: (1) Process Sewer System (SWMU No. 38); (2) Storm Sewer System (SWMU No. 39); and (3) Open Flow Ditches (SWMU No. 40). This workplan for a multi-year phased investigation of the sewer systems was approved by Illinois EPA on February 21, 2003 (Log No. B-162-CA-41).
- 2. The RCRA Sewer Inspection and Maintenance activities commenced in 2004 (Year 1). CITGO has developed a 10-year plan for the sewer inspection program, which included the division of the facility into seven (7) areas: Area 1, Area 2, Area 3, Area 4A, Area 4B, Area 5, and Area 6. Inspection and Maintenance of sewer segments in each Area is conducted in accordance with the approved plan. All defects discovered during the sewer inspection are rated in accordance with Illinois EPA approved workplans.
- 3. A report summarizing the results of the approved inspection and maintenance plan must be developed for each calendar year. The report shall be developed in accordance with the procedures set forth in the approved plan and be submitted to Illinois EPA by March 31 of each following year.
- 4. Any defect discovered during the RCRA sewer inspection and maintenance program must be evaluated to be rated for structural and environmental defects in

accordance with the procedures approved by Illinois EPA for potential release to the surrounding environment. If a defect is determined to required additional investigation, a workplan shall be developed and submitted for further corrective action investigation and remediation as necessary. Each of these defects will be assigned a SWMU ID and any further corrective action will be conducted in accordance with the procedures set forth in Sections VI.B and VI.C of this Permit.

5. CITGO completed the inspection and maintenance activities for Open Flow Ditches (SWMU No. 40) in 2005, which consisted of approximately 26,000 linear feet of open ditches at the facility.

E. FINANCIAL ASSURANCE FOR CORRECTIVE ACTION

1. CITGO shall prepare a cost estimate for the completion of any corrective measure(s) required under this Permit, in order to provide financial assurance for completion of corrective action, as required under 35 IAC 724.201(b). Such a cost estimate will be based upon the cost of contamination investigations and assessments for the SWMU(s), and design, construction, operation, inspection, monitoring, and maintenance of the corrective measure(s) to meet the requirements of this Permit. This cost estimate must be submitted to the Illinois EPA's BOL and revised according to the following schedule:

Facility Submission	<u>Due Date</u>
Updated Corrective Action Cost Estimate	Within 120 days after the effective date of this Permit (as a Class I* modification request)
Revised Cost Estimate (with the initial submittal of each RFI Report and/or CMP report)	Upon written Illinois EPA request

- 2. As indicated in Condition VI.E.1 above, an estimate of the cost of completing corrective action at this facility must be submitted to Illinois EPA within 120 days of the date of the effective date of this permit. This submittal must be developed on a SWMU by SWMU basis and include all unit costs and resource-needs used to develop the estimates.
- 3. CITGO shall demonstrate continuous compliance with 35 IAC 724.201 by providing documentation of financial assurance using a mechanism specified in 35 IAC 724.243, in at least the amount of the cost estimate required under Condition E.1 the words "completion of corrective action" shall be substituted for "closure and/or post-closure," as appropriate in the financial instrument specified in 35 IAC 724.251. The documentation shall be submitted to the Illinois EPA's BOL within 60 days after the submittal of the initial or revised cost estimates required under Condition E.1. The Illinois EPA's BOL

may accept financial assurance for completion of corrective action in combination with another financial mechanism acceptable under 35 IAC 724.246 at its discretion.

F. FUTURE RELEASES FROM SWMUS

Whenever the Permittee(s) becomes aware that any SWMU identified in Condition B.2, that was not found to be releasing hazardous waste or constituents during the RFI, or was not addressed under the corrective action requirements of this permit, may have started to release hazardous waste or constituents, the Permittee(s) shall report this information to the Illinois EPA's BOL in writing within thirty (30) days of discovery. Upon the Illinois EPA's written request, the Permittee(s) shall determine the nature and extent of the contamination by following the procedures set forth in Conditions VI.B through VI.D, beginning on the date of notification, rather than on the effective date of the permit.

G. NOTIFICATION REQUIREMENTS FOR AN ASSESSMENT OF NEWLY-IDENTIFIED SOLID WASTE MANAGEMENT UNIT(S)

- 1. The Permittee(s) shall notify the Illinois EPA's BOL in writing of any newly-identified SWMU(s) discovered during the course of groundwater monitoring, field investigations, environmental audits, or other means, no later than sixty (60) calendar days after discovery. For the purposes of this permit, Anewly-identified SWMUs shall mean all SWMUs located at the subject facility for which corrective actions have not previously been required by this permit, or which have not been previously listed in the RFA for this facility. The notification shall provide the following information, if available:
 - a. The location of the newly-identified SWMU in relation to other SWMUs on a scaled map or drawing;
 - b. The type and past and present function of the SWMU;
 - c. The general dimensions, capacities, and structural description of the unit (available drawings and specifications);
 - d. The period during which the unit was operated;
 - e. The specifics on all materials, including but not limited to, wastes and hazardous constituents, that have been or are being managed at the SWMU, to the extent available; and
 - f. The results of any relevant available sampling and analysis which may aid in determining whether releases of hazardous wastes or hazardous constituents have occurred or are occurring from the unit.

- 2. If the submitted information demonstrates a potential for a release of hazardous waste or constituents from the newly identified SWMU, the Illinois EPA may request in writing, that the Permittee(s) prepare a Solid Waste Management Unit (SWMU) Assessment Plan and a proposed schedule of implementation and completion of the Plan for any additional SWMU(s) discovered subsequent to the issuance of this Permit.
- 3. Within 120 calendar days after receipt of an Illinois EPA request for a SWMU Assessment Plan, the Permittee(s) shall prepare a SWMU Assessment Plan consistent with the requirements of VI.B through VI.E above. This SWMU Assessment Plan must also propose investigations, including field investigations if necessary, to determine the release potential to specific environmental media for the newly-identified SWMU. The SWMU Assessment Plan must demonstrate that the sampling and analysis program, if applicable, is capable of yielding representative samples and must include parameters sufficient to identify migration of hazardous waste and hazardous constituents from the newly-discovered SWMU(s) to the environment.
- 4. After the Permittee(s) submits the SWMU Assessment Plan, the Illinois EPA shall either approve, approve with conditions or disapprove the Plan in writing. If the plan is approved, the Permittee(s) shall begin to implement the Plan within sixty (60) calendar days of receiving such written notification, or by the date specified by Illinois EPA. If the Plan is disapproved, the Illinois EPA shall notify the Permittee(s) in writing of the Plans deficiencies and specify a due date for submittal of a revised plan.
- 5. The Permittee(s) shall submit a report documenting the results of the approved SWMU Assessment Plan to the Illinois EPA in accordance with the schedule in the approved SWMU Assessment Plan. The SWMU Assessment Report shall describe all results obtained from the implementation of the approved SWMU Assessment Plan. The Illinois EPA's response will be similar to that described in Conditions VI.B through VI.E above.

H. COMPLETION OF CORRECTIVE MEASURES

- 1. CITGO shall complete those corrective measures contained in the Corrective Measures Program approved in accordance with Condition VI.C above and/or interim measures approved in accordance with Condition VI.I below. CITGO may request the Illinois EPA's BOL to consider corrective action complete at any point. The petition for such a request should include a demonstration of the following:
 - a. That there have been no releases of hazardous waste or hazardous constituents to any media from the SWMUs; or

- b. That all releases are below the Release Criteria (initial corrective action objectives); or
- c. That all releases of hazardous waste or hazardous constituents to all media targeted within the RFI for investigation have been remediated to the target cleanup objectives specified within the approved Phase I CMP Report or an interim measures plan, and shall also describe how releases will be prevented in the future; or
- d. That, through the use of an Illinois EPA approved risk assessment, the corrective action is successful in protecting human health and the environment; or
- e. Some combination of the above demonstrations.

Appropriate documentation and certification must accompany such a demonstration. The actual documentation to be submitted will be described in the Phase II CMP Report.

CITGO shall be notified in writing if the Illinois EPA's BOL approves the request that the corrective actions can be considered complete. The notification from the Illinois EPA's BOL to CITGO may include a release from the financial requirements of Condition VI E above. This action shall be subject to the appeal provisions set forth in Section 39(a) and 40(a) of the Environmental Protection Act.

- 2. A determination of no further action shall not preclude the Illinois EPA's BOL from requiring continued or periodic inspections of the SWMU(s) or continued or periodic monitoring of the specified environmental media when site-specific circumstances indicate that releases of hazardous wastes including hazardous constituents are likely to occur, if necessary to protect human health and the environment. Any requirement for long-term groundwater monitoring will only be required at a SWMU where substantial soil contamination exists (as determined by the Illinois EPA) or at any SWMU which would meet the definition of a land disposal unit. Any such requirement will be subject to the appeal provisions of Section 39(a) and 40(a) of the Illinois Environmental Protection Act.
- 3. A determination of no further action shall not preclude the Illinois EPA's BOL from requiring further investigations, studies, or remediation at a later date, if new information or subsequent analysis indicates a release or likelihood of a release from a SWMU at the facility that is likely to pose a threat to human health or the environment. In such a case, the Illinois EPA's BOL shall initiate a Permit modification to rescind the no further action determination.

I. INTERIM MEASURES

At any time during the RFI the Permittee may initiate interim measures and/or voluntary corrective actions for the purpose of preventing continuing releases and/or mitigating the results of releases and/or mitigating the migration of hazardous wastes or hazardous constituents. It may not be necessary to conduct all phases of the RFI investigation if the Illinois EPA's BOL and the Permittee(s) agree that a problem can be corrected, or a release cleaned up, without additional study and/or without a formal corrective measures program (CMP).

- 1. Prior to implementing any interim measures, the Permittee must submit detailed information regarding the proposed interim measures to the Illinois EPA's BOL for approval. This information shall include, at a minimum:
 - a. Objectives of the interim measures: how the measure is mitigating a potential threat to human health and the environment and/or is consistent with and integrated into any long-term solution at the facility;
 - b. Design, construction, and maintenance requirements;
 - c. Schedules for design and construction; and
 - d. Schedules for progress reports.
- 2. If the Illinois EPA's BOL determines that a release cannot be addressed without additional study and/or a formal CMP, then the Illinois EPA's BOL will notify the Permittee that these must be performed. Any proposal made under this provision or any other activity resulting from such proposal, including the invocation of dispute resolution, shall not affect the schedule for implementation of the RFI or of any other portion of the permit.
- 3. If the Illinois EPA determines that interim measures are necessary to protect human health or the environment, the Permittee will be notified by way of a permit modification.

SECTION VII: STANDARD CONDITIONS FOR POST-CLOSURE CARE

GENERAL REQUIREMENTS

- 1. EFFECT OF PERMIT. The existence of a RCRA permit shall not constitute a defense to a violation of the Environmental Protection Act or Subtitle G, except for development, modification or operation without a permit. Issuance of this permit does not convey property rights or any exclusive privilege. Issuance of this permit does not authorize any injury to persons or property or invasion of other private rights, or infringement of state or local law or regulations. (35 Ill. Adm. Code 702.181)
- 2. PERMIT ACTIONS. This permit may be modified, reissued or revoked for cause as specified in 35 Ill. Adm. Code 703.270 through 703.273 and Section 702.186. The filing of a request by the Permittee for a permit modification or revocation, or a notification of planned changes or anticipated noncompliance on the part of the Permittee does not stay the applicability or enforceability of any permit condition. (35 Ill. Adm. Code 702.146)
- 3. SEVERABILITY. The provisions of this permit are severable, and if any provision of this permit, or the application of any provision of this permit to any circumstance is held invalid, the application of such provision to other circumstances and the remainder of this permit shall not be affected thereby. (35 Ill. Adm. Code 700.107)
- 4. PERMIT CONDITION CONFLICT. In case of conflict between a special permit condition and a standard condition, the special condition will prevail. (35 Ill. Adm. Code 702.160)
- 5. DUTY TO COMPLY. The Permittee shall comply with all conditions of this permit except for the extent and for the duration such noncompliance is authorized by an emergency permit. Any permit noncompliance constitutes a violation of the Environmental Protection Act and is grounds for enforcement action; permit revocation or modification; or for denial of a permit renewal application. (35 Ill. Adm. Code 702.141 and 703.242)
- 6. DUTY TO REAPPLY. If the Permittee wishes to continue an activity allowed by this permit after the expiration date of this permit, the Permittee must apply for a new permit at least 180 days before this permit expires, unless permission for a later date has been granted by the Illinois EPA. (35 Ill. Adm. Code 702.142 and 703.125)
- 7. PERMIT EXPIRATION. This permit and all conditions herein will remain in effect beyond the permit's expiration date if the Permittee has submitted a timely, complete application (see 35 Ill. Adm. Code 703.181-703.209) and through no fault of the Permittee the Illinois EPA has not issued a new permit as set forth in 35 Ill. Adm. Code 702.125.
- 8. NEED TO HALT OR REDUCE ACTIVITY NOT A DEFENSE. It shall not be a defense for the Permittee in an enforcement action that it would have been necessary to halt or

- reduce the permitted activity in order to maintain compliance with the conditions of this permit. (35 Ill. Adm. Code 702.143)
- 9. DUTY TO MITIGATE. In the event of noncompliance with the permit, the permittee shall take all reasonable steps to minimize releases to the environment, and shall carry out such measures as are reasonable to prevent significant adverse impacts on human health or the environment. (35 Ill. Adm. Code 702.144)
- 10. PROPER OPERATION AND MAINTENANCE. The Permittee shall at all times properly operate and maintain all facilities and systems of treatment and control (and related appurtenances) which are installed or used by the Permittee to achieve compliance with the conditions of this permit. Proper operation and maintenance includes effective performance, adequate funding, adequate operator staffing and training, and adequate laboratory, and process controls, including appropriate quality assurance procedures. This provision requires the operation of back-up or auxiliary facilities or similar systems only when necessary to achieve compliance with the conditions of the permit. (35 Ill. Adm. Code 702.145)
- 11. DUTY TO PROVIDE INFORMATION. The Permittee shall furnish to the Illinois EPA, within a reasonable time, any relevant information which the Illinois EPA may request to determine whether cause exists for modifying, revoking and reissuing or terminating this permit, or to determine compliance with this permit. The Permittee shall also furnish to the Illinois EPA, upon request, copies of records required to be kept by this permit. (35 Ill. Adm. Code 702.148)
- 12. INSPECTION AND ENTRY. The Permittee shall allow an authorized representative of the Illinois EPA, upon the presentation of credentials and other documents as may be required by law, to:
 - a. Enter at reasonable times upon the Permittee's premises where a regulated facility or activity is located or conducted, or where records must be kept under the conditions of this permit;
 - b. Have access to and copy, at reasonable times, any records that must be kept under the conditions of this permit;
 - c. Inspect at reasonable times any facilities, equipment (including monitoring and control equipment), practices, or operations regulated or required under this permit; and
 - d. Sample or monitor, at reasonable times, for the purposes of assuring permit compliance or as otherwise authorized by the appropriate Act, any substances or parameters at any location. (35 Ill. Adm. Code 702.149)

13. MONITORING AND RECORDS. (35 Ill. Adm. Code 702.150)

- a. Samples and measurements taken for the purpose of monitoring shall be representative of the monitored activity. The method used to obtain a representative sample of the waste must be the appropriate method from Appendix A of 35 Ill. Adm. Code 721. Laboratory methods must be those specified in Test Methods for Evaluating Solid Waste: Physical/Chemical Methods, SW-846, latest versions; Methods for Chemical Analysis of Water and Wastes, EPA-600/4-79-020, latest versions; or an equivalent method as specified in the approved Waste Analysis Plan.
- b. The Permittee shall retain records of all monitoring information, including all calibration and maintenance records and all original strip chart recordings for continuous monitoring instrumentation, copies of all reports and records required by this permit, and records of all data used to complete the application for this permit for a period of at least 3 years from the date of the sample, measurement, report or application. These periods may be extended by request of the Illinois EPA at any time. The permittee shall maintain records from all groundwater monitoring wells and associated groundwater surface elevations, for the active life of the facility, and for disposal facilities for the post-closure care period as well.
- c. Records of monitoring information shall include:
 - i. The date(s), exact place, and time of sampling or measurements;
 - ii. The individual(s) who performed the sampling or measurements;
 - iii. The date(s) analyses were performed;
 - iv. The individual(s) who performed the analyses:
 - v. The analytical technique(s) or method(s) used; and
 - vi. The result(s) of such analyses. (35 Ill. Adm. Code 702.150)
- 14. REPORTING PLANNED CHANGES. The permittee shall give written notice to the Illinois EPA as soon as possible of any planned physical alterations or additions to the permitted facility. In general, proposed changes to the facility will need to be submitted to the Illinois EPA as permit modification request that complies with the requirements of 35 Ill. Adm. Code 703.280. (35 Ill. Adm. Codes 702.152(a))
- 15. CONSTRUCTION CERTIFICATION. For a new hazardous waste management facility, the permittee shall not commence treatment, storage or disposal of hazardous waste; and for a facility being modified the permittee shall not treat, store or dispose of hazardous waste in the modified portion of the facility, until:

- a. The permittee has submitted to the Illinois EPA by certified mail or hand delivery a letter signed by the permittee and a registered professional engineer stating that the facility has been constructed or modified in compliance with the permit; and
- b. 1. The Illinois EPA has inspected the modified or newly constructed facility and finds it is in compliance with the condition of the permit; or
 - 2. If, within 15 days of the date of submission of the letter in paragraph (a), the permittee has not received notice from the Illinois EPA of its intent to inspect, prior inspection is waived and the permittee may commence treatment, storage or disposal of hazardous waste. (35 Ill. Adm. Code 703.247)
- 16. ANTICIPATED NONCOMPLIANCE. The Permittee shall give advanced written notice to the Illinois EPA of any planned changes in the permitted facility or activity which may result in noncompliance with permit requirements, regulations, or the Act. (35 Ill. Adm. Code 702.152(b))
- 17. TRANSFER OF PERMITS. This permit may not be transferred by the permittee to a new owner or operator unless the permit has been modified or reissued pursuant to 35 Ill. Adm. Code 703.260(b) or 703.272. Changes in the ownership or operational control of a facility must be made as a Class 1 modification with the prior written approval of the Illinois EPA. The new owner or operator shall submit a revised permit application no later than 90 days prior to the scheduled change. (35 Ill. Adm. Code 703.260)
- 18. MONITORING REPORTS. Monitoring results shall be reported at the intervals specified in the permit. (35 Ill. Adm. Code 702.152(d))
- 19. COMPLIANCE SCHEDULES. Reports of compliance or noncompliance with, or any progress reports on, interim and final requirements contained in any compliance schedule of this permit shall be submitted no later than specified in 35 Ill. Adm. Code 702.162. (35 Ill. Adm. Code 702.152(e))

20. TWENTY-FOUR HOUR REPORTING.

- a. The Permittee shall report to the Illinois EPA any noncompliance with the permit which may endanger health or the environment. Any such information shall be reported orally within 24 hours from the time the Permittee becomes aware of the following circumstances. This report shall include the following:
 - i. Information concerning the release of any hazardous waste that may cause an endangerment to public drinking water supplies.

- ii. Information concerning the release or discharge of any hazardous waste or of a fire or explosion at the HWM facility, which could threaten the environment or human health outside the facility.
- b. The description of the occurrence and its cause shall include:
 - i. Name, address, and telephone number of the owner or operator;
 - ii. Name, address, and telephone number of the facility;
 - iii. Date, time, and type of incident;
 - iv. Name and quantity of material(s) involved;
 - v. The extent of injuries, if any;
 - vi. An assessment of actual or potential hazards to the environment and human health outside the facility, where applicable; and
 - vii. Estimated quantity and disposition of recovered material that resulted from the incident.
- c. A written-submission shall also be provided within 5 days of the time the Permittee becomes aware of the circumstances. The written submission shall contain a description of the noncompliance and its cause; the period of noncompliance including exact dates and times and if the noncompliance has not been corrected; the anticipated time it is expected to continue; and steps taken or planned to reduce, eliminate, and prevent recurrence of the noncompliance. The Illinois EPA may waive the five day written notice requirement in favor of a written report within fifteen days. (35 Ill. Adm. Code 702.152(f) and 703.245(b))
- 21. OTHER NONCOMPLIANCE. The Permittee shall report all instances of noncompliance not otherwise required to be reported under Standard Conditions 14, 15, and 16, at the time monitoring reports, as required by this permit, are submitted. The reports shall contain the information listed in Standard Condition 20. (35 Ill. Adm. Code 702.152(g))
- 22. OTHER INFORMATION. Where the Permittee becomes aware that it failed to submit any relevant facts in the permit application, or submitted incorrect information in a permit application or in any report to the Illinois EPA, the Permittee shall promptly submit such facts or information. (35 Ill. Adm. Code 702.152(h))
- 23. SUBMITTAL OF REPORTS OR OTHER INFORMATION. All written reports or other written information required to be submitted by the terms of this permit shall be sent to:

Illinois Environmental Protection Agency Bureau of Land Planning and Reporting Section - #24 1021 North Grand Avenue East Post Office Box 19276 Springfield, Illinois 62794-9276

- 24. SIGNATORY REQUIREMENT. All permit applications, reports or information submitted to the Illinois EPA shall be signed and certified as required by 35 Ill. Adm. Code 702.126. (35 Ill. Adm. Code 702.151)
- 25. CONFIDENTIAL INFORMATION. Any claim of confidentiality must be asserted in accordance with 35 Ill. Adm. Code 702.103 and 35 Ill. Adm. Code 161.
- 26. DOCUMENTS TO BE MAINTAINED AT FACILITY SITE. The Permittee shall maintain at the facility, until post-closure is complete, the following documents and amendments, revisions and modifications to these documents:
 - a. Post-closure plan as required by 35 III. Adm. Code 724.218(a) and this permit.
 - b. Cost estimate for post-closure care as required by 35 Ill. Adm. Code 724.244(d) and this permit.
 - c. Operating record as required by 35 Ill. Adm. Code 724.173 and this permit.
 - d. Inspection schedules as required by 35 Ill. Adm. Code 724.115(b) and this permit.

GENERAL FACILITY STANDARDS

- 27. GENERATOR REQUIREMENTS. Any hazardous waste generated at this facility shall be managed in accordance with the generator requirements at 35 Ill. Adm. Code Part 722.
- 28. SECURITY. The Permittee shall comply with the security provisions of 35 Ill. Adm. Code 724.114(b) and (c).
- 29. GENERAL INSPECTION REQUIREMENTS. The Permittee shall follow the approved inspection schedule. The Permittee shall remedy any deterioration or malfunction discovered by an inspection as required by 35 Ill. Adm. Code 724.115(c). Records of inspections shall be kept as required by 35 Ill. Adm. Code 724.115(d).

PREPAREDNESS AND PREVENTION

30. DESIGN AND OPERATION OF FACILITY. The Permittee shall maintain and operate the facility to minimize the possibility of fire, explosion, or any unplanned sudden or

non-sudden release of hazardous waste constituents to air, soil, or surface water which could threaten human health or the environment. (35 Ill. Adm. Code 724.131)

RECORD KEEPING

31. OPERATING RECORD. The Permittee shall maintain a written operating record at the facility in accordance with 35 Ill. Adm. Code 724.173.

POST-CLOSURE

- 32. CARE AND USE OF PROPERTY. The Permittee shall provide post-closure care for the facility as required by 35 Ill. Adm. Code 724.217 and in accordance with the approved post-closure plan.
- 33. AMENDMENT TO POST-CLOSURE PLAN. The Permittee must amend the post-closure plan whenever a change in the facility operation plans or facility design affects the post-closure plan or when an unexpected event has occurred which has affected the post-closure plan pursuant to 35 Ill. Adm. Code 724.218(d).
- 34. COST ESTIMATE FOR POST-CLOSURE. The Permittee's original post-closure cost estimate, prepared in accordance with 35 Ill. Adm. Code 724.244, must be:
 - a. Adjusted for inflation either 60 days prior to each anniversary of the date on which the first closure cost estimate was prepared or if using the financial test or corporate guarantee, within 30 days after close of the firm's fiscal year.
 - b. Revised whenever there is a change in the facility's post-closure plan increasing the cost of closure.
 - c. Kept on record at the facility and updated. (35 Ill. Adm. Code 724.244)
- 35. FINANCIAL ASSURANCE FOR POST-CLOSURE CARE. The Permittee shall demonstrate compliance with 35 Ill. Adm. Code 724.245 by providing documentation of financial assurance, as required by 35 Ill. Adm. Code 724.251, in at least the amount of the cost estimates required by the previous Permit Condition. Changes in financial assurance mechanisms must be approved by the Agency pursuant to 35 Ill. Adm. Code 724.245.

Financial assurance documents submitted to Illinois EPA should be directed to the following address:

Illinois Environmental Protection Agency Bureau of Land #24 Financial Assurance Program 1021 North Grand Avenue East P.O. Box 19276 Springfield, IL 62794-9276

36. INCAPACITY OF OWNERS OR OPERATORS, GUARANTORS, OR FINANCIAL INSTITUTIONS. The Permittee shall comply with 35 Ill. Adm. Code 724.248 whenever necessary.

SECTION VIII - SPECIAL CONDITIONS

- 1. The permittee is required to complete and provide the following 39i Certification forms to the Illinois EPA Bureau of Land:
 - a. A 39i (legal entity) certification form must be filled out for the <u>legal entity</u> (i.e. Company) that appears on the permit application being submitted, and
 - b. A 39i (individual) form must be filled out for the <u>individual</u> that signs the 39i (legal entity) certification form, and
 - c. A 39i (individual) form must be filled out for each individual who signs the permit application.

Note: If the applicant wants additional staff to be able to send in future modifications, certifications, etc. those individuals should also send in an individual 39i certification form.

- 2. The permittee shall submit the necessary 39i certification form(s) and supporting documentation within 30 days of the effective date of this permit and thereafter within 30 days of any of the following events:
 - a. The owner or operator, or officer of the owner or operator, or any employee who has control over operating decisions regarding the facility has violated federal, State, or local laws, regulations, standards, or ordinances in the operation of waste management facilities or sites; or
 - b. The owner or operator, or officer of the owner or operator, or any employee who has control over operating decisions regarding the facility has been convicted in this or another State of any crime which is a felony under the laws of this State, or conviction of a felony in a federal court; or
 - c. The owner or operator, or officer of the owner or operator, or any employee who has control over operating decisions regarding the facility has committed an act of gross carelessness or incompetence in handling, storing, processing, transporting, or disposing of waste.
 - d. A new person is associated with the owner or operator who can sign the permit application or who has control over operating decisions regarding the facility, such as a corporate officer or a delegated employee.

The 39i certification must describe the violation(s), convictions, carelessness, or incompetence as outlined in (a), (b), or (c) above and must include the date that a new person as described in (d) above began employment with the applicant.

The 39i certification form and supporting documentation shall be submitted to the address specified below:

Illinois Environmental Protection Agency Bureau of Land #33 – 39i Certification 1021 North Grand Avenue East P.O. Box 19276 Springfield, IL 62794-9276

[The 39i certification forms will be treated as confidential by the Agency. The applicant may also request the information on the 39i certification form be maintained confidential in accordance with 2 IAC 1828.]

- 3. Within 60 days of the effective date of this permit, the permittee shall provide revised figures (and legal description if necessary) of the property that consistently identify the property line south of the LTF as a Class 1* permit modification.
- 4. Within 60 days of the effective date of this permit CITGO shall submit a closure plan for the LTF as a Class 1* permit modification. This submittal shall include a properly completed IEPA permit application form LPC-PA23. The PA23 Form must be signed and sealed by a qualified Professional Engineer registered in the State of Illinois and the owner/operator must check the box identifying the appropriate certification statement.

The closure plan shall describe how the permittee will address following specific requirements for the closure of land treatment units:

- a. Continue all operations (including pH control) necessary to maximize degradation, transformation, or immobilization of hazardous constituents within the treatment zone, as required under Section 724.373(a), except to the extent such measures are inconsistent with 35 IAC 724.380(a)(8);
- b. Continue all operations in the treatment zone to minimize run-off of hazardous constituents, as required under Section 724.373(b);
- c. Maintain the run-on control system required under Section 724.373(c);
- d. Maintain the run-off management system required under Section 724.373(d);
- e. Control wind dispersal of hazardous waste if required under Section 724.373(f);
- f. Continue to comply with any prohibitions or conditions concerning growth of food-chain crops under Section 724.376;
- g. Continue unsaturated zone monitoring in compliance with Section 724.378 (except soil-pore liquid monitoring is not required),
- h. Establish a vegetative cover on the portion of the facility being closed at such time that the cover will not substantially impede degradation, transformation, or immobilization of hazardous constituents in the treatment zone. The vegetative cover must be capable of maintaining growth without extensive maintenance.

- i. The horizontal extent of the land treatment areas indicated on drawings in the closure plan must include those locations where hazardous constituents were found at statistically significant concentrations over background. At a minimum this includes the following perimeter sample (PS) locations identified in the 1995 Site Characterization Report as: LAI-4PS, LAI-12PS, LAII-15PS, LAII-4PS, LAII-5PS, LAII-1PS, LAIII-1PS, LAII-1PS, L
- 5. The closure plan required in Condition VIII.4 shall include:
 - a. A schedule for closure of the land treatment areas.
 - b. A revised cost estimate for closure of the land treatment areas. The cost estimate must be provided in current (2010) dollars.
 - c. Financial assurance that meets the requirements of 35 IAC Part 724 Subpart H in the amount of the revised closure cost estimate.
- 6. The closure plan required in Condition VIII.4 shall include the following in support of its demonstration of how closure of the LTF will meet the requirements for run-on and run-off control systems required by of 35 IAC 724.380(a)(3) and (a)(4):
 - a. Detailed engineering drawings similar to Figures 131-CD-444 & 445 in Appendix I.1 of the application that show final contours of the four areas in the LTF and drainage control structures (berms, ditches, rip/rap, concrete pipe, etc.) are capable of meeting the regulations. The use of silt fences is not considered acceptable for long term management of run-on and run-off from the LTF.
 - b. Calculations demonstrating the drainage control structures shown in the engineering drawings are capable of handling the precipitation of a 24 hr 25 year storm event (i.e. 6 inches of rain) without being eroded or otherwise damaged. These calculations need to include the maximum velocity(s) the water will reach in the drainage ditches and a demonstration that this velocity will not erode or otherwise damage the drainage ditches.
 - c. Provisions for addressing the piles of sediments from the Stormwater basin that are currently located on Area I. If CITGO intends to use this material as fill in another area in the LTF, this location must be specified on scale drawings.
 - d. The specifications for the types of grasses that will be used to form the vegetative cover on the land treatment areas.
- 7. Within 60 days of the effective date of this permit, the permittee shall provide financial assurance for the amount of the closure cost and liability insurance specified in Section III of the permit. The amount of financial assurance specified in this condition must be in current (2010) values. The financial assurance documents must be on the forms approved by Illinois EPA and meet the requirements of 35 Ill. Adm Code 724 Subpart H. This revision to the permit shall be considered a Class 1* permit modification.

8. Within 60 days of the effective date of this permit, the permittee shall provide a revised post-closure cost estimate that includes 1) the cost for abandonment of piezometers and groundwater monitoring wells associated with the LTF, 2) updates the unit costs to current 2010 prices, 3) calculate the post-closure cost estimate by multiplying the annual cost by the number of years of post-closure as required by 35 IAC 724.244(a)(2). These revisions will be considered a Class 1* permit modification.

SECTION IX: REPORTING AND NOTIFICATION REQUIREMENTS

The reporting and notification requirements of each section of the RCRA permit are summarized below. This summary is provided to <u>highlight</u> the various reporting and notification requirements of this permit.

Condition	Submittal	Due Date		
III. RCRA	CLOSURE			
III.E.2	File survey plat with County Recorder that records the type, location, and quantity of hazardous waste disposed within each area.	No later than the date the certification of closure of the LTF is submitted to the Illinois EPA		
III.E.4	Closure certification report that the LTF has been closed in accordance with the approved permit application and conditions of permit.	Within 60 days after closure is complete.		
III.E.4a	Class 1* permit modification requesting to delete those conditions not associated with post-closure care.	Within 60 days after closure is complete.		
III.E.4c	Documentation that survey plat was filed with County recorder.	Within 60 days after closure is complete.		
III.E.4c	Documentation that the permittee has recorded notation on the deed to the facility property regarding hazardous waste management at the site.	Within 60 days after closure is complete.		
IV. POST-	CLOSURE CARE			
IV.D.7	Submit the results of each annual soil sampling event to IEPA.	By January 15 of each year.		
IV.D.9	Notify the Illinois EPA that there is a statistically significant increase (SSI) of hazardous constituents below the treatment zone in the LTF.			
IV.D.9	Apply for a permit modification to modify the post-closure practices.	Within 90 days of finding an SSI.		

Condition	Submittal	Due Date			
IV.F.2	Certification that the post-closure care for the LTF was performed in accordance with the specifications in the approved Post-closure Plan.	Within 60 days after post- closure care is complete.			
V. GROUN	DWATER DETECTION MONITORING				
J.2	Groundwater monitoring data and statistical calculations required semi-annually.				
	Samples Collected During Preceding Months of: April – June October – December	Results due to IEPA by: July 15 January 15			
J.3	Groundwater Surface Elevation	Semi-Annually			
J.4	Groundwater flow rate and direction.	Annually with groundwater data due July 15			
J.5	Surveyed Elevation	Every 5 years <u>or</u> at the request of IEPA, <u>or</u> whenever the elevation changes. In addition, for new wells, at the time of installation			
J.6	Elevation of the bottom of each well.	Every year due July 15			
J.10.a	Notify Illinois EPA in writing of statistically significant increase	Within 7 days after discovery of increase.			
J.10.b	Sample groundwater in all wells for Appendix I constituents.	Immediately after increase is discovered.			
J.10.d	Apply for permit modification establishing compliance monitoring program.	Within 90 days after discovery of increase.			
J.10.e	Provide Illinois EPA with corrective action feasibility plan.	Within 180 days after discovery of increase.			
J.11.a	Notify the Illinois EPA in writing of intent to make demonstration	Within 7 days the increase was discovered.			

Condition	Submittal	Due Date			
J.11.b Submit a report to Illinois EPA which demonstrates than a source other than a regulated unit caused the increase, or resulted from error.		Within 90 days the increase was discovered.			
J.11.c	Submit to the Illinois EPA application to change detection monitoring program.	Within 90 days the increase was discovered.			
VI. CORRE	CCTIVE ACTION				
B.6	Phase I/II RFI Report	To be specified in the Phase I/II workplan, subject to Illinois EPA approval.			
B.7	Phase II Workplan	Within 90 days of notification that Phase II is required.			
B.7	Supplemental Investigation workplan	Within 90 days of notification that supplemental investigation is required			
С	Phase I CMP Report	Within 120 days of receiving notification that corrective measures are necessary			
D	Annual Sewer Inspection and Maintenance Report	March 31 of each following year			
E.1	Updated Corrective Action Cost Estimate	Within 120 days of the of the effective date of this permit			
E.1	Revised Cost estimate (with the initial submittal of each RFI Report and/or CMP Report).	Upon written Illinois EPA request			
G.1	Notification of Newly Discovered SWMU	Within 60 days after discovery.			
G.3	Assessment Plan for Newly Discovered SWMU.	Within 120 days of Illinois EPA's request.			

Condition	Submittal	Due Date			
G.4	Implementation of Assessment for Newly Discovered SWMU.	Within 60 days of approval of plan or by date specified by Illinois EPA.			
VII. STANI	OARD CONDITIONS FOR POST-CLOSURE				
6	Complete application for new permit.	At least 180 days prior to permit expiration.			
11	Information requested by Illinois EPA and copies of records required to be kept by this permit.	Reasonable time.			
14	Notify Illinois EPA of planned physical alterations or additions.	At least 15 days prior to planned change.			
15	Construction certification signed by permittee and P.E.	Prior to managing waste in a new or modified portion of the facility.			
16	Notification of anticipated noncompliance.	Prior to modification or action.			
17	Application for permit modification indicating permit is to be transferred.	90 days prior to the scheduled change			
19	Submission of any information required in a compliance schedule.	Within 14 days after each schedule date.			
20	Report to Illinois EPA any non-compliance which may endanger health or environment.				
	telephone	Within 24 hours after discovery.			
	in writing	Within 5 days after discovery.			
21 -	Report all other instances of noncompliance.	March 1 of each year along with Annual Report.			
35	Provide documentation of financial assurance as	Annually, or when cost			

Condition	<u>Submittal</u>	Due Date		
	required by 35 Ill. Adm. Code 724.251	estimate changes		
Notify Illinois EPA of commencement of voluntary or involuntary bankruptcy proceedings.		Within 10 days after commencement of proceeding.		
VIII. SPEC	TAL CONDITIONS			
2	39i Certification Forms	Within 30 days of the effective date of this permit and within 30 days of events specified in permit.		
3	Revised figures (and legal description if necessary) of the property that consistently identify the property line as a Class 1* permit modification.	Within 60 days of the effective date of this permit		
4	Closure plan for the land treatment facility (LTF) as a Class 1* permit modification.	Within 60 days of the effective date of this permit		
7	Financial assurance for the amount of the closure cost and liability insurance specified in Section III of the permit.	Within 60 days of the effective date of this permit		
8	Revised post-closure cost estimate	Within 60 days of the effective date of this permit		
ATTACHM	IENT C-1: SCOPE OF WORK FOR RFI			
V	Completion of Group 1 or 2 RFI Phase I/II investigation and submission of report	Within time frame established in the Phase I/II Workplan, subject to Illinois EPA's approval.		
	Submission of RFI Phase II Workplans	Within 90 days of notification that Phase II is required.		
	Completion of RFI Phase II investigation and submission of Phase II Report	Within time frame established in the Phase II workplan subject to Illinois EPA's approval.		

Condition	Submittal	Due Date
	Submission of Supplemental Investigation Workplan	Within 90 days of notification that supplemental investigation is required.
	Completion of supplemental Investigation and Submission of Report and Summary	To be specified in the supplemental investigation workplan subject to approval by Illinois EPA.
	Annual RCRA Sewer Inspection and Maintenance Report	March 31 of each following
	Corrective Action Progress Report	Upon request and to be specified by Illinois EPA.
ATTACHM	ENT D: CORRECTIVE MEASURES PROGRA	M REQUIREMENTS
3.0	Conceptual Design Report	Within 90 days of approval of the Phase II CMP Report
4.0	Final Design Report	Within 120 days of approval of the Conceptual Design Report or as otherwise specified by the Illinois EPA
5.0	Construction Progress Reports	Quarterly during the construction/installation of the corrective measures
	Construction Report	To be specified in the Final Design Report
	Operation and Maintenance Plan	To be specified in the Final Design Report
6.0	Periodic Operations and Maintenance Progress Reports	To be specified in the Operation and Maintenance Plan.

CITGO Lemont Refinery

Renewal RCRA Hazardous Waste Permit

USEPA ID No: ILD041550567 STATE ID No: 1978030004 Log No: B-162R

ATTACHMENT A CLOSURE CERTIFICATION FORM

CITGO Lemont Refinery RCRA Log No. B-162R

This certification is to be completed by both the responsible officer and by the qualified Professional Engineer registered in Illinois upon completion of closure. Submit one copy of the certification with original signatures and three additional copies.

Closure Certification

The four areas in the hazardous waste Land Treatment Facility (D81) at the CITGO Lemont Refinery in Lemont, Illinois have been closed in accordance with the Agency approved closure plan.

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

USEPA ID Number	Facility Name
Signature of Owner	Printed Name and Title
Signature of Operator	Printed Name and Title
Signature of P.E.	Printed Name of P.E. and Illinois Registration Number
Date	P.E. Seal and Expiration Date of License

CITGO Lemont Refinery

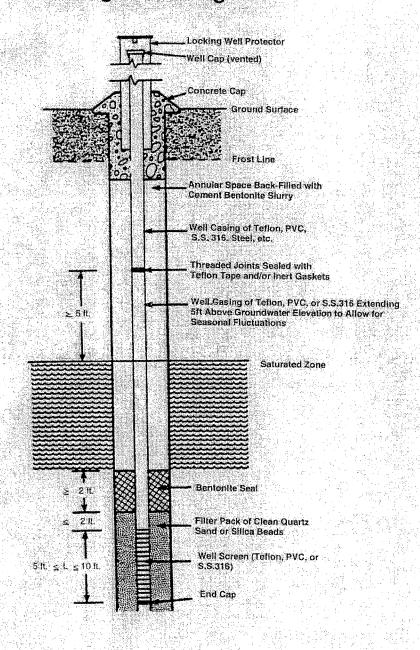
Renewal RCRA Hazardous Waste Permit

USEPA ID No: ILD041550567 STATE ID No: 1978030004 Log No: B-162R

ATTACHMENT B

GROUNDWATER MONITORING ATTACHMENTS

Monitoring Well Diagram



	Illinois Environmental Protection Agency			Ī	iel	d Bo	rin	g Log	3	Page of
Site ID No. Federal ID No. Site Name:			County:Boring No Monitoring Well No							
Quadrangle	Sec. T.	R.		100	Surface Elevation: Completion Depth: Auger Depth: Rotary Depth: Date: Start: Finish:					
Plane) Coo Latitude:	rd. N. (X) E. (Y) Longitude:	0. , ,		Dat						Sht:
Boring Loc	ation:		-			SA	MP	LES		Personnel
Drilling Eq	nipment:	Graphic Cog	ith eet	Sample No.	aple Type	Sample Recovery (X)	Penetroineter	N Values (Blow Counts)	OVA or HNU Readings	G - We da we
Elev.	Description of Material		Depth In Feet	Sau	San	Sam Rec	Pen	N (Blo	OV.	REMARKS
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						55 () 55 () 5 ()				
		L.								
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		The 1988 and 1 and 1 and 1							-1.5	

Field Boring Log (revised 02/02/04

Site Name:		클릭하는 하는 사람	Well #:
Site Name: State Plane Coordinate: X Y (or) Latitude		o Longitude:	Borehole #;
리를 받아 있다. 스스트 (1985년 - 1985년 - 일본 (1985년 - 1985년 - 1			
Surveyed by:		IL Registration #:	
Drilling Contractor:		Driller:	
Consulting Firm:		Geologist:	
Drilling Method:		Drilling Fluid (Ty	pe):
Logged By:			Date Finished:
Report Form Completed By:		Date:	
ANNULAR SPACE DETAILS			Depths (.01ft.)
	est-kingler understation aus	(MSE)*	(BGS) Top of Protective (
			Top of Riser Pipe
Type of Surface Seal:			Ground Surface
Type of Annular Sealant:			Top of Annular Se
Installation Method:			Static Water Level
Setting Time:			(After Completion
Type of Bentonite Seal - # Granular, Pellet, Slurry			
(Choose One)	X X	<u> </u>	Top of Seal
Installation Method:			Top of Sand Pack
Setting Time:	And Control of the Co		Top of Screen
Type of Sand Pack:			Bottom of Screen
Grain Size:(Sieve Size)			Bottom of Well
Installation Method:	1,000		Bottom of Boreho
Type of Backfill Material:		* Referenced to	a National Geodetic Datum
(if applicable)		CASING MEASURME	NTS
Installation Method:		Diameter of Borehole (inches ID of Riser Pipe (inches)	
VELL CONSTRUCTION MATERIAL (Choose one type of material for each are	2)	Protective Casing Length (fet Riser Pipe Length (feet)	gattigg strategies trait is to be a company
rotective Casing SS304, SS316, PJFE, PVC, or iser Pipe Above W.T. SS304, SS316, PJFE, PVC, or iser Pipe Below W.T. SS304, SS316, PJFE, PVC, or creen SS304, SS316, PJFE, PVC, or	r Other r Other	Bottom of Screen to End Cap Screen Length (1s slot to last Total Length of Casing (feet) Screen Slot Size **	slot) (feet)
		**Hand-Slotted Well Screen	are unacceptable
l Completion Form (revised 02/06/02)			

ILLINOIS EPA MONITOR WELL PLUGGING AND ABANDONMENT PROCEDURES.

	Well Construction		Plugging Pracedure	
IUnconsolidated Segiment Wells	LA_	if backfilled with cement grout above bentonite seal and/or sandpack:	 Cut casing off at desired depth. Mix neat cement sturry (5 gat. water per 94 lb. bag cement). Insert tremi pipe (1" i.d. pvc) into well and extend to bottom. Slowly pump sturry under low pressure through temi pipe. Slowly withdraw tremi pipe - making sure bottom of pipe remains below pure sturry. Continue slow pumping until all formation water and the watery sturry mix is displaced from top of casing. 	
	i B	if backfilled with soft sediments (cuttings) above bentonite seal and/or sandpack;	 Knock out and remove thin surface concrete plug, if present. Re-auger entire length of well. Remove well casing from re-augured borehole. Mix neat cement slurry (5 gal. water per 94 lb. bag cement). Insert tremi pipe (1" i.d. pvc) into augers and extend to bottom. Slowly pump slurry under fow pressure through tremi pipe. Continue slow pumping until all formation water and the water slurry mix is displaced from top of casing. Slowly withdraw tremi pipe - making sure bottom of pipe remains below pure slurry. Pull a flight of augers (5" if in unstable materials and hole collapse is likely or 10" if in competent material and collapse is unlikely). Top off cement slurry after each flight is removed. 	
	I-G	if monitor well construction is unknown:	1. Follow procedures in I-A.	
II. Bedrock Wells	II-A	1. Cut casing off at desired depth. 2. Mix neat cement slurry (5 gal, water per 94 lb. bag cement). 3. Insert tremi-pipe (1"i.d. pvc) into well and extend to bottom.		

Well Plugging Procedures (revised 02/06/02)

Formatting Requirements for the 01 Record of the Electronically Submitted Groundwater and Leachate Data (the 01 Record portion of the LPC-160 is included for example purposes)

RECORD TRANS CODE CODE L P C S M 0 1 1 A	HEMICAL ANALYSIS FORM
REPORT DUE DATE 7 / Y	FEDERAL ID NUMBER
SITE INVENTORY NUMBER	MONITOR POINT NUMBER (see Instructions) 19 17
PACILITY NAME	DATE COLLECTED / / SOURCE DE C
FOR IEPA USE ONLY LAB	BACKGROUND SAMPLE (X) TIME COLLECTED
SAMPLE APPEARANCE	SAMPLE FIELD FILTERED — INORGANICS (X)
COLLECTOR COMMENTS	
LAB COMMENTS 159	142
. IL 532 1213 LPC 160 01/90	to require this information under Minois Revised Statutes, 1979. Chapter 111 ½, Section 1004 and information is required. Failure to do so may result in a civil penalty up to \$25,000 for each day-the

Formatting Requirements for the 01 Record of the Electronically Submitted Groundwater and Leachate Data (the 01 Record portion of the LPC-160 is included for example purposes)

Div	VISION OF LAND POLLUTION CONTROL Page 1 of CHEMICAL ANALYSIS FORM
CODE	RANS ODE
REPORT DUE DATE /	PEDERALID NUMBER
SITE INVENTORY NUMBER	MONITOR POINT NUMBER
REGIONCO	DATE COLLECTED / / / 33 23 M D Y 33
PACILITY NAME:	
FOR YEPA USE ONLY	BACKGROUND SAMPLE (X) TIME COLLECTED 54. (24 Hr., Clock) 55 11 N
LAB	UNABLE TO COLLECT SAMPLE
DATE RECEIVED	
	(see Instructions) 66 OTHER (SPECIFY) SAMPLE FIELD FILTERED INORGANICS (X) ORGANICS (X)
SAMPLE APPEARANCE	4(
COLLECTOR COMMENT	
LAB COMMENTS	150
IL 532 1213 LPC-160-01/90	
1021. Disc	y is authorized to require this information under Illinois Revised Statutes, 1979, Chapter 111-74, Section 1004 and lossure of this information is required. Fallure to do so may result in a civil penalty up to \$25,000 for each day the induces a fine-up to \$1,000.00 and imprisonment up to one year. This form has been approved by the Forms in Center.
Wastes, Ph	cal procedures must be performed in accordance with the methods contained in "Test Methods for Evaluating Solid ysical/Chemical Methods," SW-846, 3° Edition, September 1986 or equivalent methods approved by the Agency, ple chain of custody control and quality assurance/quality control procedures must be maintained in accordance with

KEY:

Spaces Numbered	Description	<u>Format</u>
Spaces 1-7	Record Code	LPCSM01
Space 8	Trans Code	Α
Spaces 9-18	Site ID	0000000000
Spaces 19-22	Mon Pt ID	G000
Spaces 23-28	Date Collected	000000
Space 29	Lab	
Spaces 30-35	Filler	
Spaces 36-41	Report Due Date	000000
Spaces 42-47	Date Received	000000
Spaces 48-53	Filler 2	
Space 54	Background Sample	
Spaces 55-58	Time Collected	0000
Space 59	Unable to Collect Sample	
Space 60	Monitoring Point Sampled By	
Space 61	Field Filtered – Inorganic	
Space 62	Field Filtered - Organic	
Spaces 63-102	Sample Appearance	
Spaces 103-142	Collector Comments	
Spaces 143-149	Filler 3	
Spaces 150-199	Lab Comments	

Formatting Requirements for the 02 Record of the Electronically Submitted Groundwater and Leachate Data (the 02 Record portion of the LPC-160 is included for example purposes)

:	RECORD CODE L P C S M 0 2 TRANS CODE A (COLUMNS 9-29 FROM ABOVE)						
	<u>FIELD MEASUREMENTS</u> CONSTITUENT DESCRIPTION AND REQUIRED UNIT OF MEASURE	STORET NUMBER	Remarks See Inst.	Replicate	< or >		VALUE
Q	TEMP OF WATER (unfiltered °F)	$\frac{0}{30}$ $\frac{0}{0}$ $\frac{1}{34}$	35	36	37	38	47
Q	SPEC COND (unfiltered umhos)	00094			_		
Q	pH (unfilted units)	00400	_				
Q	ELEV OF GW SURF (ft ref MSL)	<u>7 1 9 9 3</u>					
Q	DEPTH OF WATER (ft below LS)	<u>7 2 0 1 9</u>	<u></u>				
А	BTM WELL ELEV (ft ref MSL)	72020					
Q	DEPTH TO WATER FR MEA PT (ft)	72109			_		
	·						
			<u> </u>	· 	l		

IL 532 1213 LPC 160 01/90

This Agency is authorized to require this information under Illinois Revised Statutes, 1979, Chapter 111 ½, Section 1004 and 1021. Disclosure of this information is required. Failure to do so may result in a civil penalty up to \$25,000 for each day the failure continues a fine up to \$1,000.00 and imprisonment up to one year. This form has been approved by the Forms Management Center.

All analytical procedures must be performed in accordance with the methods contained in "Test Methods for Evaluating Solid Wastes, Physical/Chemical Methods," SW-846, 3rd Edition, September 1986 or equivalent methods approved by the Agency. Proper sample chain of custody control and quality assurance/quality control procedures must be maintained in accordance with the facility sampling and analysis plan.

KEY:

Spaces Numbered	Description	Format
Spaces 1-7	Record Code	LPCSM02
Space 8	Trans Code	A
Spaces 9-18	Site ID	0000000000
Spaces 19-22	Mon Pt ID	
Spaces 23-28	Date Collected	
Space 29	Lab	
Spaces 30-34	STORET Number	
Space 35	Remarks	
Space 36	Replicate	
Space 37	< or >	
Space 38-47	Value	

^{*}Only Keypunch with Data in Column 35 or Columns 38-47

CITGO Lemont Refinery

Renewal RCRA Hazardous Waste Permit

USEPA ID No: ILD041550567 STATE ID No: 1978030004 Log No: B-162R

ATTACHMENT C-1

Scope of Work for a RCRA Facility Investigation

Attachment C-1 Scope of Work for a RCRA Facility Investigation

I. <u>PURPOSE</u>

The purpose of the RFI is to determine the nature and extent of releases of hazardous waste or hazardous constituents, if any, from SWMUs located at CITGO and to gather data necessary to develop and implement a Corrective Measures Program (CMP). Specifically, the information gathered during the RFI will be used to help determine the need, scope and design of any corrective or interim actions, including the corrective measures program.

II. SCOPE OF WORK

The Scope of Work for the RFI is to evaluate whether a release has occurred, and to what extent, from the two groups of SWMUs listed in Section IV of the Permit. The scope for the Group 1 and Group 2 SWMUs is divided into two phases - Phases I and II.

- 1. The purpose of Phase I is to provide information on the characteristics and integrity of each unit and conduct field activities, as necessary, to determine if various SWMUs at that facility have released, are currently releasing, or have the potential to release hazardous waste and/or hazardous constituents to the soil and/or surface water.
- 2. Phase II of the RFI will be required if the Illinois EPA's BOL determines from the data obtained in Phase I that for any SWMU (1) a release has occurred to the soil, groundwater, and/or surface water, or (2) a release is occurring to the soil, groundwater, and/or surface water. The purpose of Phase II is to define the nature and extent of releases to any affected media including soil, groundwater, and/or surface water.
- 3. Supplemental investigation may be required if the Illinois EPA's BOL determines from the data obtained in Phase I or Phase II that the nature and extent of hazardous wastes or hazardous constituents has not been adequately characterized in any environmental media including soil, groundwater, or surface water and sediments.

Each phase of the investigation is divided into three subparts. The first subpart deals with the development of a RFI Workplan by the Permittee. The second subpart is the implementation of the RFI. The final subpart covers the submission of reports of activities and results of the RFI.

III. RFI WORKPLANS

CITGO shall prepare detailed workplans that address each phase of the RFI which are reviewed and approved by the Illinois EPA prior to conducting that phase of the RFI. Separate plans will be prepared for the Group 1 and Group 2 SWMUs. The workplan for each phase of the RFI must,

at a minimum, contain the information identified in III.A-III.I below. The information in the workplan must be presented in a manner which is similar to the format set forth in these sections. Information provided in each Phase of the RFI may be incorporated into the workplan for the subsequent Phase by reference. Information already submitted in the Part B permit application may also be incorporated by reference into the workplans when appropriate.

The following sections describe what is required in the RFI Workplans for Phase I and Phase II investigations. These phases can be combined into one workplan provided that the requirements of each phase are met.

A. <u>INTRODUCTION</u> (required for all workplans)

A general discussion of the contents and goals of each workplan must be provided as an introductory portion of the workplan. This introduction should also discuss, in general, the facility and the SWMUs being investigated.

B. ADMINISTRATIVE OUTLINE

CITGO shall submit as part of the workplan for each phase of the RFI a general outline defining the RFI objectives, technical approach, and scheduling of tasks during that phase of the RFI. CITGO shall prepare a Project Management Plan (PMP) as part of each Phase Workplan which will include a discussion of the technical approach, schedules, budget, and personnel. The Project Management Plan must also include a description of the qualifications of personnel performing or directing the RFI, including contractor personnel. This plan shall also document the overall management approach to the current Phase of the RFI. The PMP from previous phases can be incorporated by reference into the current workplan provided that any changes or additions to the existing PMP are detailed in a PMP addendum contained within the workplan.

C. RFI APPROACH

Each workplan must describe the investigative approach for the phase and group of SWMUs being investigated under the workplan. The information required includes:

- 1. The parameters and analytical methods to be used to establish the presence or absence of contamination and define the nature and extent of known releases. These must include, but are not limited to, specific hazardous constituents of wastes known or suspected to have been managed by the SWMUs as identified and determined by the unit characterization information presented in the workplan.
- 2. The basis for selecting the parameters and methods in (1) above.
- 3. The methodology for choosing sampling locations, depths, and numbers of samples.

- 4. The methodology for investigating the hydrostatigraphic units at site, and the locations and depths for each monitor well, as appropriate.
- 5. The sample collection procedures for each parameter or constituent to be analyzed for each environmental media (soil, sediments, surface water, and groundwater). The following should be considered in developing these procedures:
 - a. Sample collection methods and equipment should follow guidance in Test Methods for Evaluating Solid Wastes, Physical/Chemical Methods, Third Edition (SW-846) including Final Update 1 and any promulgated updates, where appropriate.
 - b. Field sampling methods not included in SW-846 must be approved by IEPA before they are used in the RFI. This includes methods such as drilling, borings, etc. When available, standards procedures, as defined by USEPA, IEPA, or ASTM, should be followed.
 - c. Soil and sediment samples collected for volatile organics analysis require specialized sampling and handling procedures, as specified in the Illinois EPA's volatile organic compound (VOC) sampling procedure. Unless extenuating circumstances dictate otherwise, soil samples collected for volatile organic analysis should not be mixed, composited, or otherwise aerated. If extenuating circumstances prevail, then procedures must be made to minimize (1) the time the sample is exposed to the air; (2) aeration of the sample; and (3) agitation of the sample.
 - d. If a drill rig or other piece of equipment is necessary to collect soil samples:
 - (1) The procedures specified in ASTM Method D-1586 (Split Spoon Sampling) or D-1587 (Shelby Tube Sampling) must be used in collecting the samples;
 - (2) Soil samples should be collected continuously at specified locations to provide information regarding the shallow geology of the area where the investigation is being conducted.
 - e. Soil and sediments encountered in an area where VOC contamination is a concern should be field-screened for VOCs. However, the actual samples collected for analysis at the laboratory should not be field-screened.
 - f. The procedures which will be used to decontaminate the sampling equipment after each sample is collected should also be described. Decontamination procedures should be carried out in accordance with SW-846.

- g. The actual material placed in the container for future analysis should be obtained from any visually contaminated portion of the sample, when present.
- 6. The sample handling procedures which will be used to store, preserve and transport the collected soil or water samples to the laboratory, including chain-of-custody procedures and preservative techniques. These procedures should be carried out in accordance with the guidance in SW-846, Third Edition, including Final Update 1 and any promulgated updates.
- 7. The analytical procedures which will be used to prepare the samples for analysis and to analyze them. In general, such procedures should be carried out in accordance with those set forth in SW-846, Third Edition including Final Update 1 and any promulgated updates, as appropriate. The actual portion of the sample to be analyzed should be obtained from visually contaminated material if any is present. The procedures specified must be sufficient to analyze for all the parameters identified in the workplan. The estimated quantitation limits and/or practical quantitation limits to be achieved should also be identified. Again, these limits should meet the requirements set forth in SW-846. It must be noted that it is especially important to achieve low detection limits if the goal of the sampling/analysis effort is to demonstrate that little or no contamination exists in a given area. To demonstrate a parameter is not present in a sample, the PQL achieved must be at least as low as that specified in SW-846, where practical. Low detection limits may not be as necessary when collecting samples in contaminated areas.
- 8. The procedures which will be used to describe and characterize the soils in and around the subject SWMUs down to the sampling depth but not below the water table, including the following:
 - a. Unified Soil Classification;
 - b. Soil profile; and
 - c. Elevation of water table.
- 9. Documentation that sampling and analysis of groundwater monitoring wells will be carried out in accordance with the Quality Assurance Project Plan as required in III.G below. The plan shall provide information on the design and installation of all groundwater monitoring wells. The designs shall be in accordance with the latest version of the RCRA Groundwater Monitoring Draft Technical Guidance (EPA 53OR-93-001), where appropriate, and the latest version of the Illinois EPA's BOL design criteria. At a minimum:
 - a. The groundwater monitoring wells must consist of monitoring wells installed in the uppermost aquifer and, as necessary, in each underlying aquifer (e.g., sand units) which is hydraulically interconnected, where appropriate or necessary to characterize the release;

- b. At least one background monitoring well in each appropriate aquifer shall be installed hydraulically upgradient (i.e., in the direction of increasing static head) from the limit of the SWMU, except to the extent that SWMUs in close proximity can be investigated with the same background well system. The number, locations, and depths must be sufficient to yield groundwater samples that are (1) representative of background quality in the uppermost aquifer and units hydraulically interconnected beneath the facility and (2) not affected by SWMUs or other contamination sources at the subject facility; and
- c. Monitoring wells in each appropriate aquifer shall be installed hydraulically downgradient (i.e., in the direction of decreasing static head) at the limit of the SWMU or SWMU group. Their number, locations and depths must ensure that they allow for detection of releases of hazardous waste or hazardous constituents from the SWMU(s).
- 10. The procedures and criteria for evaluating analytical results to establish the presence or absence of any plume of contamination and to define the boundaries of the plume of contamination. The release criteria shall be defined in this portion of the plan.

D. SITE-SPECIFIC SAMPLING PLANS

The Permittee shall prepare detailed site-specific sampling plans to be submitted as part of the work for each phase of the RFI which address all field activities needed to obtain site-specific data. The plans must contain: a statement of sampling objectives, specifications of equipment, analyses of interest, sample types, sample locations and schedules for sampling. The plans must describe in detail how the RFI will be implemented.

Site-Specific sampling and analysis plans should contain the following information for each SWMU or SWMU group being investigated:

- 1. <u>Goals and Objectives of Effort</u> A discussion of the goals and objectives of the sampling/analysis effort should be included in the plan for the SWMU. This will have an impact on the overall plan, as the sampling/analysis effort required to demonstrate that an area is clean is very different than that required to determine the horizontal and vertical extent of contamination.
- 2. Parameters and Analytical Procedures A list of proposed parameters and analytical methods along with a discussion justifying their selection for the SWMU should be included in the plan. The proposed parameters should include those hazardous constituents which may be present based upon a knowledge of the wastes managed at the unit. This list should include degradation products. Additional parameters for analysis may be required by the Illinois EPA, depending on its review of the wastes and other materials managed at the facility.

- 3. <u>Sample Locations</u> A scaled map should be provided in the plan showing the location where the samples are to be collected.
- 4. <u>Sampling Depth</u> As appropriate, the plan should identify the depth from which each sample is to be collected.
- 5. <u>Sample Collection Procedures</u> The procedures which will be used to collect the samples must be described in the workplan.
- 6. Any additional items regarding the sampling/analysis at a specific SWMU.

E. <u>INFORMATION REQUIRED SPECIFICALLY IN THE RFI PHASE I</u> WORKPLANS

The following information must be provided as part of the RFI Phase I Workplans.

1. General Facility Information

The following information must be provided (to the extent known) in the Phase I RFI Workplan regarding the facility overall:

- a. A description of the facility, including the nature of its business, both past and present. This description should identify (1) the size and location of the facility, (2) the raw materials used and products manufactured at the facility and (3) the Standard Industrial Code which describes the type of activities carried out at the facility;
- b. Identification of past and present owners;
- c. A discussion of the facility's past and present operations, including solid and hazardous waste generation, storage, treatment and disposal activities;
- d. A brief discussion of the SWMUs addressed under the workplan;
- e. A description of all significant surface features (ponds, streams, depressions, etc.) and wells within 1,500 feet of the facility;
- f. A description of all land usage within 1,500 feet of the facility boundary;
- g. Identification of all human populations and environmental systems susceptible to contaminant exposure from releases from the SWMUs within a distance of at least 1,500 feet of the facility;

- h. Approximate dates or periods of past spills or releases, identification of material spilled, amount spilled, location, and a description of the response actions, including any inspection reports or technical reports generated as a result of the spill or release.
- i. A current topographic map(s) showing a distance of at least 1,500 feet around the facility and other information described below, and at a scale of one inch equal to not more than 200 feet. Contours shall be shown on the map, with the contour interval being sufficient to clearly show the pattern of surface water flow. If such a map is not available, the workplan shall describe the method for generating the map for inclusion in the Group 1 Phase I/II report, as required to support the RFI. The map shall clearly show the following:
 - (1) Map scale, North arrow, date, and location of facility with respect to Township, Range and Section;
 - (2) Topography and surface drainage depicting all waterways, wetlands, 100-year floodplain, drainage patterns, and surface water areas as related to the SWMUs and the surrounding areas;
 - (3) Property lines, with the owners of all adjacent property clearly indicated;
 - (4) Surrounding land use;
 - (5) Locations and boundaries of (1) all solid waste, including hazardous waste, management units, both past and present, (2) spill areas and (3) other suspected areas of contamination;
 - (6) All injection and withdrawal wells, and
 - (7) All buildings, tanks, piles, utilities, paved areas, easements, rights-of-way, and other features including all known past and present product and waste underground tanks or piping, as available and applicable to potential releases from the SWMUs.

The map(s) shall be of sufficient detail and accuracy to locate and report all current and future RFI work performed at the site. The base map(s) shall be submitted in the Group 1 Phase I/II report and modified in subsequent reports and workplans as appropriate.

2. Unit Characterization

Phase I Workplans must contain the following information, to the extent known, for each SWMU included in the Group being investigated:

- a. Location of unit/area;
- b. The horizontal and vertical boundaries of each unit/area;
- c. Details regarding the construction, operation and structural integrity of each unit/area;
- d. A description of all materials managed and/or disposed at each SWMU including, but not limited to, solid waste, hazardous wastes, and hazardous constituents to the extent they are known or suspected over the life of the facility including
 - (1) Type of waste or hazardous constituents placed in the units, including source, hazardous classification, quantity and chemical composition;
 - (2) Physical and chemical characteristics, including physical form, physical description, general chemical class, cohesiveness of the waste;
- e. The history of the utilization of each SWMU and the surrounding areas, including the period of operation and age of the unit;
- f. Methods used to close the unit, if applicable;
- g. A description of the existing degree and extent of contamination at each unit area.
- h. Identification of additional information which must be gathered regarding 2.a through 2.g above.

3. <u>Soil Sampling and Analysis Plan</u>

The Sampling and Analysis Plan (SAP), dated March, 2006 developed by the Permittee was approved by Illinois EPA on August 8, 2006 (Log No. B-162-CA-9, 32, 33) with conditions and modifications. This plan was developed to be used as a reference document throughout the corrective action process at the facility. The SAP contains standard procedures for sampling and analysis for soil, groundwater and surface water during investigations. All corrective action investigation shall be conducted in accordance with the SAP and the Illinois EPA's August 8, 2006 approval letter (Log No B-162-CA-9, 32, 33) and subsequent approved plans. As indicated in the August 8, 2006 letter, an individual sampling plan shall be developed for each SWMU during the entire corrective action process; however, the foundation for the workplans shall follow the approve procedures of the SAP. Any modifications to the approved SAP must be submitted to Illinois EPA for review and approval.

4. Surface Water and Sediment Sampling and Analysis Plan

Phase I Workplans must provide for a determination of the presence or absence of releases of hazardous wastes and hazardous constituents into all surface waters or their sediments potentially affected by the facility. The SWMUs requiring surface water and sediment investigations are identified in Condition IV.B.1. The plan should meet the requirements of III.C and III.D and must also include, but is not limited to:

- a. A description and characterization of all potentially affected surface waters, as it is available, including locations, areas, depths, inflows and outflows, volumes of water, seasonal fluctuations, flooding tendencies, drainage patterns, on-site and off-site affected populations and activities.
- b. Descriptions and characterization of sediments associated with all surface waters, as it is available, including deposition areas, thickness profiles, and physical and chemical parameters;

5. <u>Hydrogeologic and Hydrologic Description</u>

The Group 1 Phase I/II Workplan and any other workplans for investigating groundwater must provide descriptions of the hydrogeology and hydrology setting at the facility.

The information which must be provided regarding the hydrogeology and hydrology at the facility includes:

- a. Information, as it is available, for the facility overall, regarding:
 - (1) The regional geologic and hydrogeologic characteristics in the vicinity of the facility, including stratigraphy, hydrogeologic flow and the areas of recharge and discharge.
 - (2) Any topographic or geomorphic features that might influence the groundwater flow system;
 - (3) The hydrogeologic properties of all of the hydrogeologic units found at the site down to the first bedrock aquitard, including: hydraulic conductivity and porosity, texture, uniformity and lithology; and interpretation of hydraulic interconnections between saturated zones, and zones of significant fracturing or channeling in the unconsolidated and consolidated deposits;
 - Using the facility map as a base, isopach and structural contour maps, and at least two (2) geologic cross sections showing the extent (depth, thickness, lateral extent) of all hydrogeologic units within the facility boundary, down to the first bedrock aguitard, identifying: all units in the

unconsolidated and consolidated deposits; zones of higher permeability or lower permeability that might direct or restrict the flow of contaminants; perched aquifers; and the first saturated zone that may have a potential for migration of contaminants;

- (5) The water level or fluid pressure monitoring, including: water level contour maps and vertical gradient sections, well or piezometer hydrographs and interpretation of the flow system, interpretation of any changes in hydraulic gradients, and seasonal fluctuation; and
- (6) Any man-made influences that may affect the hydrogeology of the site, identifying local water supply and production wells and other man-made hydraulic structures within 1500 feet of the facility boundary.
- b. Additional hydrogeologic and hydrologic information may be gathered during the groundwater or SWMU investigations.
- c. A detailed discussion of all previous groundwater monitoring efforts. This discussion must include: (1) scaled maps showing the location of all wells used to collect the monitoring data; (2) construction details of the wells used to collect the monitoring data; (3) a summary of the results of all previous groundwater monitoring efforts; and (4) a detailed evaluation of the collected data

6. <u>Potential Receptors</u>

The Group 1 Phase I/II workplan must contain data describing the human populations and environmental systems within a radius of 1,500 feet of the facility boundary that may be affected by releases from SWMUs must be collected and submitted. The following characteristics shall be identified.

- a. Local uses and possible future uses of groundwater:
 - (1) Type of use (e.g., municipal or residential drinking water source, industrial, etc.); and
 - (2) Location of groundwater users, including wells and discharge areas.
- b. Local uses and possible future uses of surface waters draining the facility:
 - 1. Domestic and municipal;
 - 2. Recreational;
 - 3. Agricultural;

- 4. Industrial; and
- 5. Environmental.
- c. Human use of, or access to, the facility and adjacent lands, including, but not limited to:
 - 1. Recreation;
 - 2. Agriculture; and
 - 3. Residential.

7. <u>Integrity Inspection</u>

The Group 2 RFI Phase I Workplan must provide for an evaluation of the structural integrity of the concrete-asphalt surface of the drum staging areas (SWMUs 1 and 20) and the heat exchanger bundle cleaning pads (SWMUs 10 and 25A-C). These surfaces shall be inspected by an independent registered professional engineer for cracks/joints which penetrate through the concrete/asphalt. The workplan must define the standards and procedures that will be followed when conducting the inspections. The standards and recommendations of professional/technical entities such as the American Concrete Institute, the Portland Cement Association, the American Society of Testing and Materials, the American Society of Civil Engineers, etc., which relate to the ability of concrete/asphalt to contain liquids should be considered. The results of this inspection shall be (1) submitted in the form of a report, (2) included in the Group 2 RFI Phase I report, and (3) certified in accordance with 35 Ill. Adm. Code 702.126 by the engineer. The reports must include (1) the results of the inspection, (2) scaled drawings showing the location of all cracks and construction joints observed during the investigation, (3) conclusions reached regarding any cracks or construction joints observed in the area of concern, (4) justification for the conclusions reached (e.g., information must be provided which indicates that any construction joints in the areas of concern are indeed watertight), and (5) photographs to support the conclusions reached and recommendations for correction action to prevent releases from the SWMU, as appropriate.

If joints, cracks or other defects are found in the base of any SWMU during the inspection required above which would potentially allow hazardous waste or hazardous constituents to migrate through them, then the Phase I Workplan must provide for the collection of soil samples beneath them to determine if hazardous waste or hazardous constituents have been released to the underlying soil.

a. Samples should be collected from at least one location along each joint or crack that provides a potential for hazardous waste or hazardous constituents to migrate to underlying soil. Such locations shall be biased to stained areas or low-lying areas where spills would tend to accumulate.

- b. Samples should be collected from 0" 6" below the subgrade/natural soil interface.
- c. Samples must be collected and analyzed in accordance with the procedures set forth in the sampling and Analysis Plan below.

F. INFORMATION REQUIRED SPECIFICALLY IN THE RFI PHASE II WORKPLANS

1. Soil Investigation

A Phase II Soil Sampling and Analysis plan, if necessary, must describe procedures to determine the nature and extent of hazardous waste and/or hazardous constituents released to the soil. This plan shall address and/or include, in addition to the plans specified in III.C and III.D:

- a. A description of what is known about the horizontal and vertical extent of contamination;
- b. A description of relevant contaminant and environmental chemical properties within the affected source area and plume, including solubility, specification absorption, leachability, exchange capacity biodegradability, hydrolysis, photolysis, oxidation and other factors that might affect contaminant migration and transformation (if known);
- c. Specific contaminant concentrations, if known;
- d. The horizontal and vertical velocity and direction of contaminant movement (if known);
- e. An extrapolation of future contaminant movement (if known); and
- f. The methods and criteria to be used to define the boundaries of the plume(s) of contamination.

2. Sediment and Surface Water Sampling and Analysis Plan

A Phase II RFI sampling and analysis plan to characterize the contamination of surface waters and sediments shall include, at a minimum:

- a. A description of the horizontal and vertical extent of any plumes and the extent of contamination in the underlying sediments (if known);
- b. Specific contaminant concentrations (if known);

- c. The horizontal and vertical direction and velocity of contaminant movement (if known);
- d. An evaluation of the physical, biological and chemical factors influencing contaminant movement (if known):
- e. An extrapolation of future contaminant movement (if known);
- f. The criteria used to define the boundaries of the plume; and
- g. The sampling conditions required under III.C and III.D.
- 3. <u>Hydrogeologic and Geologic Investigation Plan</u> The Phase II hydrogeologic and geologic investigation plan must provide descriptions of groundwater monitoring systems which will provide adequate data on the detection, nature, extent and rate, and concentration of any release from the SWMU to the groundwater at the facility.

The information which must be provided regarding the investigation of hydrogeology and hydrology at each SWMU includes:

- a. Information for the individual SWMU or SWMU group, or other approved approach as it is available, regarding:
 - (1) The regional geologic and hydrogeologic characteristics in the vicinity of the facility, including stratigraphy, hydrogeologic flow and the areas of recharge and discharge.
 - (2) Any topographic or geomorphic features that might influence the groundwater flow system;
 - (3) The hydrogeologic properties of all of the hydrogeologic units found at the site down to the first bedrock aquitard, including: hydraulic conductivity and porosity, texture, uniformity and lithology; and interpretation of hydraulic interconnections between saturated zones, and zones of significant fracturing or channeling in the unconsolidated and consolidated deposits;
 - (4) The water level or fluid pressure monitoring, including: water level contour maps and vertical gradient sections, well or piezometer hydrographs and interpretation of the flow system, interpretation of any changes in hydraulic gradients, and seasonal fluctuation; and
 - (5) Any man-made influences that may affect the hydrogeology of the site, identifying local water supply and production wells and other man-made

hydraulic structures near a SWMU, SWMU Group, or on a Site-Wide basis.

- b. Procedures for obtaining information identified in III.F.3.a above which was not obtained during preparation of the workplan, as required to characterize the release at the SWMU.
- c. A description of the extent of contamination in groundwater associated with a release from the SWMU, including:
 - (1) A description of the known horizontal and vertical extent of the contamination;
 - (2) Specific contaminant concentrations, if known;
 - (3) The horizontal and vertical velocity and direction of contaminant movement, if known; and
 - (4) An extrapolation of future contaminant movement.
- d. A sampling plan which follows III.C and III.D.

G. <u>DATA COLLECTION QUALITY ASSURANCE</u>

Quality Assurance Project Plan (QAPP), dated March, 2006 developed by the Permittee was approved by Illinois EPA on August 8, 2006 (Log No. B-162-CA-9, 32, 33) with conditions and modifications. This plan was developed to be used as a reference document throughout the corrective action process at the facility. The QAPP contains standard procedures for the quality assurance plan during soil and groundwater sampling and analysis. All quality assurance of soil and groundwater sampling and analysis during corrective action investigation shall be conducted in accordance with the QAPP and the Illinois EPA's August 8, 2006 approval letter (Log No B-162-CA-9, 32, 33) and subsequent approved plans. Any modifications to the approved QAPP must be submitted to Illinois EPA for review and approval.

H. DATA MANAGEMENT PLAN

The Permittee shall develop and initiate a Data Management Plan to document and track investigation data and results. This Plan shall identify and set up data documentation materials and procedures, project file requirements, and project related progress reporting procedures and documents. The Plan shall also provide the format to be used to present the raw data and conclusions of the investigation(s). This plan shall be submitted with the Group 1 Phase I/II Workplan or other workplan as appropriate. The Data Management

Plan can be incorporated by reference in subsequent workplans and changes shall be made as necessary through addendums to the original plan.

I. HEALTH AND SAFETY PLAN

Under the provisions of 29 CFR 1910 (54 FR 9,295, March 6, 1989), cleanup operations must meet the applicable requirements of OSHA's Hazardous Waste Operations and Emergency Response standard. These requirements include hazard communication, medical surveillance, health and safety programs, air monitoring, decontamination and training. General site workers engaged in activities that expose or potentially expose them to hazardous substances must receive a minimum of 40 hours of safety and health training off site plus a minimum of three days of actual field experience under the direct supervision of a trained experienced supervisor. Managers and supervisors at the cleanup site must have at least an additional eight hours of specialized training on managing hazardous waste operations. These requirements must be met during each phase of the RFI. A detailed Health and Safety Plan (HSP) demonstrating that his requirement is met must be contained in the workplan for each phase of the RFI. The HSP from previous phases can be incorporated by reference into the current workplan provided that any changes or additions to the existing HSP are detailed in an addendum contained within the workplan.

J. IMPLEMENTATION OF RFI

The Permittee shall conduct those investigations necessary to characterize the site, and to determine the nature, rate and extent of migration, and concentrations of hazardous waste and hazardous constituents, if any, released from the SWMUs into the surface water and sediments, groundwater, and soil. The investigations must be of adequate technical content to support the development and evaluation of a corrective measures program, if one is deemed necessary by the Illinois EPA's BOL.

The investigation activities shall follow the plans and procedures set forth in the Workplan(s) and the RFI schedule. Any actual or anticipated deviations from the Workplan(s) or the RFI schedule shall be reported no later than the time of submission of the next quarterly report required by Section V subsequent to the determination of need or actual deviation from the Workplan.

K. SUBMISSION OF REPORTS OF RFI ACTIVITIES

The Permittee must prepare and submit workplans and reports which must be submitted to the Illinois EPA for review and approval in accordance with the schedule set forth in the following table. Any progress report to summarize overall corrective action program at the facility must be submitted by CITGO upon Illinois EPA's request:

Facility Action	Due <u>Date</u>
Completion of Group 1 or 2 RFI Phase I/II investigation and submission of report	Within time frame established in the Phase I/II Workplan, subject to Illinois EPA's approval.
Submission of RFI Phase II Workplans	Within 90 days of notification that Phase II is required.
Completion of RFI Phase II investigation and submission of Phase II Report	Within time frame established in the Phase II workplan subject to Illinois EPA's approval.
Submission of Supplemental Investigation Workplan	Within 90 days of notification that supplemental investigation is required.
Completion of supplemental Investigation and Submission of Report and Summary	To be specified in the supplemental investigation workplan subject to approval by Illinois EPA.
Annual RCRA Sewer Inspection and Maintenance Report	March 31 of each following
Corrective Action Progress Report	Upon Illinois EPA's request and to be specified by Illinois EPA.

CITGO Lemont Refinery

Renewal RCRA Hazardous Waste Permit

USEPA ID No: ILD041550567 STATE ID No: 1978030004 Log No: B-162R

ATTACHMENT C-2

Summary of Illinois EPA Letters Regarding Corrective Action

Attachment C-2

Summary of Illinois EPA Letters Regarding Corrective Action and CITGO's Submittals to Illinois EPA Under Review

(Updated October 2010)

I. Chronological Summary of Illinois EPA Letters Regarding Corrective Action

IEPA Letter		
Dates & Log No.	Description of Submittal	IEPA Action Taken
9/18/97 B-162	Application for RCRA Post-Closure Permit.	Issued a RCRA permit for closure and post-closure care of four land treatment units. Permit also required facility to conduct corrective action at 34 SWMUs. Permit broke SWMUs down to two groups, with Group 1 being those
		SWMUs, with a known release or highest potential risk to human health and the environment, which are to be addressed first then the Group II SWMUs. A list of SWMUs is provided in Attachment 1; a drawing showing the locations of the SWMUs and 4 land treatment units is provided in Attachment 2.
10/22/98 B-162-M-11	A request to modify the GMZ beneath and around the stormwater basin (this GMZ is also identified as SWMU 33). The requirements for the GMZ were initially contained in Conditions IV.B.1.a of the RCRA Permit.	Approved request (the GMZ is also identified as SWMU 33).
11/28/00 B-162-M-1	Closure by removal demonstration at the wastewater treatment sludge decant Basin (a surface impoundment) which had previously been closed under IEPA approved plan (Log No. C-193). This is also referred to as SWMU 15C; required by Condition I.C of the RCRA permit.	Disapproved request; required further soil investigation be conducted at this unit.

IEPA Letter	Daniel War (Cont. 144.1	IEDA A C. T.I.
Dates & Log No. 5/14/01 B-162-M-1	Description of Submittal A workplan for soil investigation at SWMU 15C as part of closure by removal demonstration required by Condition I.C of the permit; follow-up to our 11/28/00 letter (see above).	Approved with conditions and modifications.
10/9/01 B-162-CA-1 B-162-CA-2 B-162-CA-3	Following documents were included in this submittal: a. Group I RFI Phase I/II Wkpln b. Sewer Inspection and Maintenance Work Plan c. Streamlined Corrective Action Workplan	All three documents were disapproved.
11/14/01 B-162-M-1	A soil investigation report for SWMU 15C, submitted as part of the closure by removal demonstration required by Condition I.C of the Permit. Follow-up to our 5/14/01 letter.	Approved report with conditions; required the facility to remove the "ashy/silty" materials from the unit.
9/27/02 B-162-M-1	Final closure by removal demonstration document for SWMU 15C, as required by Condition I.C of the permit. It contained soil investigation results and soil excavation report; follow-up to our 11/14/01 letter.	Approved a closure by removal demonstration for a former surface impoundment as known as SWMU 15C.
2/21/03 B-162-CA-4 (1)	Sewer Inspection and Maintenance Work Plan (B-162-CA-2), submitted in May 1998.	Approved plan as a follow-up to IEPA's 10/9/01 letter.
4/9/03 B-162-CA-4 (2)	The submittal, received on 1/17/02, consisted of: -Workplan for Streamlined RCRA Corrective Action; -Results of Site-Wide Groundwater Investigation; and -Workplan and Procedures: Streamline Corrective Action	IEPA's response included concerns and requirements that need to be addressed prior to establishing the revised process for carrying out corrective action program at facility.

IEPA Letter		
Dates & Log No.	Description of Submittal	IEPA Action Taken
1/28/04 B-162-CA-6 B-162-CA-7	Submittals included: Site-Wide Groundwater Monitoring Report (9/03); Workplan for Streamlined RCRA Corrective Action (10/03); Letter dated 1/8/04- request to withdraw the 10/03 streamlined workplan. A 1/30/04 report entitled SWMU-1 Soil Investigation, Streamline	Approved the Site-Wide Groundwater Monitoring Report with conditions to conduct additional groundwater investigation at the site. Indicated the streamlined plan was withdrawn and as discussed in 12/03 meeting, a revised Streamline CA Workplan is to be submitted to IEPA by 1/31/04. Approved a report documenting that no further action was necessary to
	Corrective Action Program and supplemental information, dated 5/6/04.	address SWMU 1 (Former Empty Drum Storage Area).
10/4/04 B-162-CA-9 B-169-CA-10	Submittal contained following documents: Work Plan for Site-Wide Groundwater Monitoring (rec'd on 2/2/04); Wkpln for Eval of GW Conditions at I&M Canal (rec'd on 3/30/04); Sewer Inspection—Annual Report (rec'd on 3/30/04); RCRA Streamlined Category A SWMU Work Plans (rec'd on 3/30/04) for SWMUs 2a-e, 3, 16, 17, 19b, 24, 31a, and 31b-e.	-Accepted the Sewer Inspection annual reportApproved the Workplan for Category A SWMUs with conditions and modifications and focused mainly on soil investigation onlyRequired additional groundwater corrective action activities, a report for evaluation of I&M canal, and additional information regarding groundwater monitoring wells are required in this letter.
1/6/05 B-162-CA-5	A workplan entitled <u>SWMU 43j</u> : <u>Pipeline release Located Near</u> <u>Tanks 92 and 108</u> , which included a soil sampling plan for SWMU 43j (rec'd on 12/14/04).	Approved workplan with conditions and modifications.
3/23/05 B-162-CA-12	A groundwater report entitled, <u>Field Investigation Report: Evaluation of Groundwater Conditions at the I&M Canal</u> , rec'd on 11/23/05. CITGO proposed natural attenuation to address the groundwater contaminations at the site.	Disapproved report; required CITGO to submit a plan to address groundwater in I&M Canal within 60 days (this date was eventually extended by additional 60 days as a result of a 5/19/05 meeting between IEPA and CITGO).

IEPA Letter	Description of Cuburittel	IEDA A ation Talson
Dates & Log No. 8/24/05 B-162-CA-13 &15-22	Submittals rec'd on 3/31/05 contained Category A SWMU investigation Reports for the following SWMUs: SWMUs 2a-e, 3, 16, 17, 19b, 24, 31a, 31b-e, and 43j (workplan for this effort had been approved on 10/4/04).	Approved the reports. Additional work is necessary at each SWMU.
10/21/05 B-162-CA-23	Site Wide Groundwater Monitoring Report, rec'd on 6/20/05, was submitted to address groundwater concern discussed during a meeting between IEPA and CITGO on 6/19/05.	Approved the report with conditions and modifications. IEPA required CITGO to submit additional information regarding its background and details on the remediation options.
11/30/05 B-162-CA-9	Work Plan for Streamlined Corrective Action, rec'd on 2/3/04 and related draft revised worplan, rec'd via e-mail on 3/1/05 & 5/13/05.	Disapproved. CITGO is required to submitted either a revised CA workplan or a Phase I/II RFI Workplan for all Group I SWMUs in accordance with the RCRA Permit by 1/31/05.
1/31/06 B-162-CA-25	Phase II RFI Workplan for SWMUs 2A-E received on 11/28/05.	Approved Citgo's plan to monitor this unit for 12-mo and to submit a report of the monitoring after 12-mo. No further investigation is necessary regarding soil at these units.
2/27/06 B-162-CA-1 & 8	 CITGO's 1/14/04 letter regarding Disposal of Storm Water Basin (SWB) Material, rec'd on 1/16/04. CITGO's 7/12/05 submittal entitled, Withdrawal of January 14, 2004 Proposal Regarding sSorm Water Basin (SWB) Material at the Land Treatment Facility (LTF) and Notice of Plan for Final Grading of SWB Material at the LTF, rec'd on 7/15/05. CITGO's 12/8/05 letter to request an extension for submittal of a Phase I/II RFI Workplan for Group I SWMUs, rec'd on 11/18/05. 	Approved an extension request and required CITGO to submit a Phase I/II RFI Workplan for Group I SWMUs by March 31, 2006. Also approved withdrawal of CITGO's 1/14/04 letter; however, this letter didn't not address any other content of the 7/12/05 submittal. Rob Watson (RCRA Unit) to respond to final grading plan in 7/15/05 submittal.

IEPA Letter		
Dates & Log No.	Description of Submittal	IEPA Action Taken
2/27/06 B-162-CA-27 thru 30	Phase II RFI Workplans for following SWMUs: SWMU 17, SWMU 19B, SWMU 31A, and SWMU 43J, rec'd on 11/28/05.	Approved Phase II Workplans for the four SWMUs with conditions and modifications. Acknowledgement that a revised SAP and QAPP will be submitted in the near future. Any future CA activities will be conducted in accordance with the facility's RCRA permit.
4/3/06 B-162-CA-26	Phase II RFI Workplan for SWMU 16 (Former Sludge Application Area).	Approved the Phase II RFI workplan for SWMU 16 with conditions and modifications. It required to address arsenic contamination and to submit a report by September 1, 2006.
5/8/06 B-162-CA-31	2006 Groundwater Monitoring and Investigation Work Plan, dated 1/30/06 (rec'd on 2/1/06). This submittal replaced Groundwater CA Workplan was received on 7/19/05 (B-162-CA-24).	Approved the groundwater investigation work plan with conditions and modifications. Additional information is required to be submitted within 30 days.
6/8/06 B-162-CA-14& 34	2004 RCRA Sewer Investigation Annual Report, dated 3/30/06 (rec'd on 4/1/05), and 2005 RCRA Sewer Investigation Report, dated 3/24/06 (rec'd on 3/27/06).	Approved with conditions and modifications. Additional information, such as maps, information regarding ratings and investigative schedule to be submitted within 75 days
7/17/06 B-162-CA-35 thru 47	Phase I/II RFI Workplans for the following 13 SWMUs, dated 3/30/06: 4, 7, 11A, 11B, 12, 19D, 21, 30, 32, 33, 34, 36, and 37.	Approved with several conditions and modifications. No further corrective action was required for the following SWMUs: SWMU 36 and SWMU 37.
8/8/2006 B-162-CA-9 (CCR), -32 (QAPP), -33 (SAP)	(1) Quality Assurance Project Plan (QAPP), dated 3/22/06; (2) Sampling and Analysis Plan (SAP), dated 3/22/06; and (3) Current Conditions Report (CCR), dated 1/30/04.	Approved with conditions and modifications. Illinois EPA required standard procedures for the sampling and analysis program unless otherwise specifically proposed in an individual workplan for each SWMU.

IEPA Letter		
Dates & Log No.	Description of Submittal	IEPA Action Taken
10/4/06 B-162-CA-48, 49 &50	(1) Modification to Interim 2006 Site-wide Groundwater monitoring and Investigation workplan – Free Phase Hydrocarbon Procedures, dated 6/1/06; (2) Response to Comment #1, dated 6/1/06; (3) Amended request to Groundwater Work Plan: Groundwater monitoring and Investigation workplan, dated 8/4/06; and (4) Response to Comment #7 – Sampling Schedule, dated 6/1/06.	Approved with conditions and modifications. A few modifications to proposed FPH recovery and monitoring are made by Illinois EPA.
11/27/06 B-162-CA-52	Phase II RFI Report for Former Sludge Application Area (SWMU 16), dated 8/30/06.	No further corrective action was required for SWMU 16.
1/17/07 B-162	Citgo's letter entitled <u>Monitoring</u> Well/Piezometer Abandonment (P-16,PB-MW-4 & FR-MW-5), dated 8/11/06.	Approved abandonment of P-16,PB-MW-4 & FR-MW-5. Additional submittal regarding the three wells are requested.
1/17/07 B-162-CA-51	Response to Comments on 2004 and 2005 RCRA Sewer Investigation Annual Reports, dated 8/18/06.	Additional information to the 2004 & 2005 Annual Sewers Reports are approved with conditions and modifications.
4/12/07 B-162-CA-55&61	Phase I RFI Report for Spill at Hot Oil Line (SWMU 4) and Vertical Oil Storage Tank (SWMU 21), both dated 1/30/07.	An ELUC must be placed for SWM 21 to restrict land use for Ind/Comm. No further action is required for SWMU 4.
5/17/07 B-162-CA-53	"Re-Evaluation of Groundwater Management Zone", received on 10/3/06.	Approved with conditions and modifications.
5/31/07 B-162-CA-54&66	"Stepped Flow Rate Pump" and "Site-wide Groundwater monitoring and Investigation Workplan", received on 11/29/06 and 2/6/07, respectively.	Approved with conditions and modifications.

IEPA Letter		
Dates & Log No.	Description of Submittal	IEPA Action Taken
6/13/07 B-162-CA-56 thru 60, 62, 63, 64	Phase I RFI Reports for the following SWMUs: 7, 11A, 11B, 12, 19D, 30, 34, 2 a-e (all but SWMU 2 report were submitted on 1/30/07; SWMU report was submitted on 2/28/07).	Phase II workplans and groundwater remedial plan for SWMU 2 must be submitted within 90 days.
12/6/07 B-162-CA-73 thru 84	Phase I RFI Workplans for the following SWMUs: 5, 10, 13, 15A/15B, 18&19A, 19C, 20, 25A, 25B, 25C. 35, and 44.	The twelve-workplans were approved with conditions and modifications.
12/17/07 B-162-CA-67	2006 RCRA Sewer Investigation Annual Report was submitted and was received on march 28, 2007 and October 5, 2007 (CA certification form).	The annual report was approved with conditions and modification.
12/17/07 B-162-CA-69 thru 72	Phase II RFI Report for the following SWMUs: 17, 19B, 31A, and 43J (received on May 16, 2007).	Approved Phase II Report for the 4 SWMUs with conditions and modifications.
B-162-CA-85 1/28/08	(1) Preliminary GRW-2 and GRW-2 Effectiveness Report, dated 07/06/07; and (2) Response to Comment 2C (Ca- 54&66), dated 8/1/07.	Approved with conditions. No groundwater investigation is necessary at SWMUs 36 & 37. No replacement wells are necessary at SWMU 32. Replacement wells are approved at SWMU 30, 31A-E.
2/20/08 B-162-CA-65&88	Soil Investigation of Year 2 defects (1/31/07), Re-examination of Sewer Defects/Soil Locations (9/4/07) and Soil Investigation of Year 3 and Remaining Year 2 Defects (10/17/07).	Approved with conditions and modifications.
4/25/08 B-162-CA-86	September 10, 2007 submittal (rec'd 9/13/07) regarding following SWMUs: 7, 11A&B, 12, 19D. 30, 34, and 2a-e.	Approved with conditions and modifications. This submittal included CM Plan for 19D.
4/25/08 B-162-CA-90	Multiple Step Pump Test (8/28/07)(rec'd 8/30/07) was submitted to further evaluate the pilot testing of hydraulic controls at GQ-MW-2A.	Approved with conditions and modifications. The facility is required to submit a report upon the completion of the pilot testing.

IEPA Letter				
Dates & Log No.	Description of Submittal	IEPA Action Taken		
8/1/08 B-162-CA-91	Citgo's March 14, 2008 submittal (rec'd on 3/18/08) addressed CA activities at the following SWMs: 17, 19B, 31A, an 43J. This submittal was sent in response to IEPA's 12/17/07 letter (CA-69-72).	Approved with conditions and modifications. Workplan for SWMU 19B and an extension of submitting a workplan for SWMU 43J are approved.		
12/18/08 B-162-CA-114	A corrective measure completion report for SWMU 19D Former sludge Drying Area, received on 10/31/08.	Approved NFA with condition that migration to groundwater exposure route is addressed through GMZ and that ELUC will have to be eventually placed for industrial land use in the area.		
1/13/09 B-162-CA-92	2007 Annual Sewer Investigation Report	Approved with conditions and modifications.		
3/12/09 B-162-CA-93 thru 97	Phase II RFI Workplan for SWMUs 38a, 38b, 38c, 39a, and 39b (RCRA sewer investigation – soil investigation)	Approved with conditions and modifications.		
B-162-CA-100 and 119 No letter Issued (5/28/09 memo to BOL File)	-An extension request for the 4 required submittals included in the IEPA's 4/25/08 letter (Log No. B-162-CA-86)Summary of Conference Call from 11/19/2008.	-Extension request was approved prior to the submittal of letter - Summary was informational purpose only.		
6/5/09 B-162-CA-101	Corrective Measures Plan (CMP) for SWMU43J	Approved with conditions and modifications		
6/16/09 B-162-CA- 116,117, 118	addressed: (1) Group 2 Phase I Report for: SWMU 25A, (2) Phase II & Closure Report for SWMU 34, and (3)CM Plan for SWMU 12	Approved with conditions and modifications		
9/16/09 B-162-CA-115	Proposed gauging and re-sampling Sumps 2c and 2e utilizing low-flow sampling technique.	Approved with conditions and modifications		
12/21/09 B-162-CA-121	2008 RCRA Annual Sewer Investigation Report, which addressed West Tank Farm (Areas 3 and 5) and North Plant (Areas 4b and 2).	Approved with conditions and modifications.		

IEPA Letter		
Dates & Log No.	Description of Submittal	IEPA Action Taken
2/1/10 B-162-CA-135	CITGO's 12/16/09 letter, proposing to abandon five flush mounted piezometers (PZ-4, PZ-5, PZ-7, PZ-8 and PZ-9)	Approved with conditions and modifications.
2/24/10 B-162-CA-129	SWMU 43J CM Completion report.	Approved with conditions and modifications.
3/15/10 B-162-CA-127	SWMU 38A Investigation report.	Approved with conditions and modifications.
4/26/10 B-162-CA-102	Current Conditions Report and Proposed workplan for Future Groundwater Management, Lemont Refinery, Illinois	Approved with conditions and modifications.
7/8/10 B-162-CA-139	Phase II RFI and Closure report for SWMU 38a- Process Sewer Line Segment at 31-MH8-DP01 to 31-MH8-DP-02	Approved with conditions and modifications. Tier 2 evaluation for construction worker Inhalation ROs were approved.
7/14/2010* B-162-CA-133	Proposal for additional sampling at SWMU 7 to delineate lead contamination found in the area.	This proposal for additional investigation was approved prior to the submittal of the letter.
*IEPA Memo to BOL File	contamination found in the area.	
7/29/10 B-162-CA-142	Notification of a newly discovered SWMU (SWMU 45-Contaminated Fill Area)	Approved the proposal to submit a RFI worklplan by 8/31, 2010 for this new SWMU.
10/4/10 B-162-CA-126, 128	Revised CMP for SWMU 12Investigation report for SWMUs 38b, and 38c.	NFR was issued for SWMU 38b with ELUC for I/C use. NFA on soil was required for SWMUs 12 and 38c, however, groundwater must be investigated for SWMUs 12 and 38c.

II. Summary of CITGO's Submittals to Illinois EPA Under Review

Log No. & Rec'd Date	Description of Submittal
B-162-CA-98 5/23/08	Draft ELUC for SWMU 31A. May 2008 submittal supersedes March 2008 submittal.
B-162-CA-99 5/28/2008	Draft ELUC for SWMUs 31 B-E. May 2008 submittal supersedes Oct 2007 submittal (B-162-CA-87)
B-162-CA-103 thru109 and 110 thru 113 10/2/08	Group 2 Phase I RFI Reports for the following SWMUs: 5,10, 13, 15A/B, 18&19A, 19C, 20 25B, 25C, 35 and 44
B-162-CA-120 3/16/09	Soils Investigation Report for 2007 Sewer Defects
B-162-CA-122 4/17/09	RFI Phase I reports for SWMUs 43A thru I.
B-162-CA-123 4/17/09	RFI Phase II report for SWMU 11A
B-162-CA-124 4/17/09	RFI Phase II report for SWMU 11B
B-162-CA-125 8/4/09	CMP for SWMU 30
B-162-CA-130 11/13/09	CM completion report for SWMU 19b
B-162-CA-131 11/30/09	CM completion report for SWMU 39a
B-162-CA-132 11/30/09	CM completion report for SWMU 39b
B-162-CA-134 11/23/09	Supplemental SWMU 2a-e investigation report.
B-162-CA-136 1/6/10	Soils Investigation Report for 2008 Sewer Defects

	Log No. & Rec'd	
	Date	Description of Submittal
•	B-162-CA-137 3/31/10	2009 RCRA Sewer Investigation Annual Report
	B-162-CA-138 4/8/10	Revised Tier 2 proposal for SWMU 34 in response to IEPA's April 25, 2008 letter (Log No. B-162-CA-86).
	B-162-CA-140 6/1/10	Defect Release Determination Soil Screening Assessment Work Plan for SWMUs 38, 39, and 40.
	B-162-CA-141 6/7/10	Phase I RFI and Closure Report for SWMU 38D (Process Sewer Line segment: 52-LF51-DP-01 TO 52-MH34-DP-01)
	B-162-CA-144 8/31/10	SWMU Assessment Report for SWMU 45.
	B-162-CA-145 9/27/10	Site-Wide Groundwater Management Program Proposed Workplan
	B-162-CA-146 10/25/10	Phase II RFI and Supplemental Investigation Report for SWMU 7

CITGO Lemont Refinery

Renewal RCRA Hazardous Waste Permit

USEPA ID No: ILD041550567 STATE ID No: 1978030004 Log No: B-162R

ATTACHMENT D

Corrective Measures Program Requirements

Attachment D Corrective Measures Program Requirements

1.0 Introduction

In accordance with Section 3004 of RCRA and 35 IAC 724.201, CITGO must institute such corrective action necessary to protect human health and the environment from all releases of hazardous wastes, or hazardous constituents listed in the modified Skinner List of constituents provided in the approved Permit Renewal Application from any Solid Waste Management Unit (SWMU) at its facility. This is accomplished by:

- 1. Conducting a RCRA Facility Investigation (RFI) to determine whether releases of hazardous wastes and hazardous constituents have occurred from any Solid Waste Management Unit (SWMU) at the subject facility, and, if so, the nature and extent of the release; and
- 2. Based on the results of the RFI, developing and implementing a Corrective Measures Program which describes the necessary corrective actions which will be taken. The required corrective actions shall be those actions necessary to protect human health and the environment from all releases of hazardous wastes, or hazardous constituents, listed in Appendix H of 35 Ill. Adm. Code Part 721, from any SWMUs above site-specific cleanup objectives.

The purpose of this document is to describe the steps in developing and implementing the Corrective Measures Program (CMP). To allow for a logical and orderly progression in developing and implementing necessary corrective action at SWMUs, the Corrective Measures Program should be carried out in five phases.

- 1. Phase I should consist of (1) development of final cleanup objectives, (2) discussion of those SWMUs requiring corrective measures and (3) a preliminary evaluation of the corrective action alternatives available for each SWMU requiring corrective action.
- 2. Phase II should consist of development of a conceptual design of the corrective action chosen for each SWMU including remedial system(s) and/or institutional controls.
- 3. Phase III should consist of development and submission of the final design plans for the corrective action, including operation/maintenance plans and plans for the actual installation of the desired correction action.
- 4. Phase IV is the actual construction/installation of the selected corrective measure.
- 5. Phase V CMP is operation, maintenance, and monitoring of the selected corrective action to ensure it is properly protecting human health and the environment.

Workplans, reports, etc. will have to be developed as part of the efforts associated with each phase. All such documents will be subject to Illinois EPA review and approval. Details associated with each phase and the development of workplans, reports, etc. required for each phase is provided below.

2.0 Phase I of the CMP

In the initial phase of the Corrective Measures Program, the Permittee should (1) develop cleanup objectives for the SWMUs being investigated, and then (2) identify those SWMUs requiring corrective action. If it should be determined that a specific SWMU, or group of SWMUs, require corrective action, then the Permittee should identify, in general, types of remedial technologies or institutional controls which may be instituted to address and/or stabilize residual contamination, and identify the goals of the corrective measures. All of these efforts should be documented in the form of a Phase I Corrective Measures Report which includes the following:

- 1. <u>Proposed Final Soil Clean-up Objectives</u>. Final soil cleanup objectives will determine the need for and extent of soil remediation (soil corrective measures) at each SWMU investigated.
 - a. The procedures utilized to develop the final soil cleanup objectives must take into consideration, as appropriate:
 - i. The volume and physical and chemical characteristics of the contaminants of concern;
 - ii. The effectiveness and reliability of containment, confinement and collection systems and structures in preventing contaminant migration;
 - iii. The hydrologic characteristics of the unit and the surrounding area, including the topography of the land around the unit;
 - iv. The patterns of precipitation in the region;
 - v. The existing quality of surface soils, including other sources and their cumulative impacts on surface soils;
 - vi. The potential for contaminant migration and impact to the underlying groundwater;
 - vii. The land use patterns around the facility;
 - viii. The potential for health risks caused by human exposure to the waste constituents; and

- ix. The potential for damage to domestic animals, wildlife, food chains, crops, vegetation, and physical structures caused by exposure to waste constituents.
- b. The Permittee and the Illinois EPA should have a meeting prior to the time that the Permittee begins developing these objectives. The goal of this meeting will be to provide the Permittee with guidance regarding the procedure which should be followed in developing and proposing these final cleanup levels.
- c. The Illinois EPA will establish final cleanup levels if none are proposed by the Permittee.
- d. All remedial objectives must be developed in accordance with 35 Ill. Adm. Code 742 (TACO). Any other methods used to develop remedial objectives for this project must be approved by the Illinois EPA.
- e. Final Illinois EPA action taken on the development of and establishment of these final soil cleanup levels will be subject to the appeal provisions of Section 39(a) of the Illinois Environmental Protection Act.
- f. For certain SWMUs, it may not be appropriate to establish final soil cleanup levels. This will be the case for those SWMUs where the selected corrective action is capping of the area followed by long-term monitoring of groundwater.
- 2. <u>Final Groundwater Corrective Measures Objectives.</u> Final corrective measures or cleanup groundwater objectives will determine the need for and extent of groundwater remediation (groundwater corrective measures). The procedures used in the development of these objectives must be in general accordance with the procedures described above for final soil cleanup objectives and must also meet the requirements set forth in 35 IAC 620.
 - a. The Permittee and the Illinois EPA should have a meeting prior to the time that the Permittee begins developing these objectives. The goal of this meeting will be to provide the Permittee with guidance regarding the procedure which should be followed in developing and proposing these final groundwater cleanup objectives;
 - b. The Illinois EPA will establish final cleanup levels if none are proposed by the Permittee.
 - c. Final Illinois EPA action taken on the development of an establishment of these final objectives will be subject to the appeal provisions of Section 39(a) of the Illinois Environmental Protection Act.
- 3. <u>Evaluation of Need for Corrective Action</u> The need for corrective action at each SWMU should be evaluated, based upon a comparison of the proposed clean-up objectives to the results of the RFI.

- 4. Potential Corrective Measures The report should contain a general discussion of the possible corrective measures which may be taken at SWMUs where it is determined that some type of corrective measure is necessary. More detailed information of such measures should be provided if the selected corrective measure has an impact on the development of the clean-up objectives. Also, there must be a discussion of whether the various measures will actually remove the contamination from the environmental media of concern or whether it is some type of institutional control to minimize the potential for future releases from the SWMU. Typically, some type of long-term monitoring is required for corrective measures which employ institutional control.
- 5. <u>Schedule for the Corrective Measures Program</u> The schedule for each Phase of the CMP and the submittals shall be included.
- 6. Ecological Assessment An ecological assessment may be required as part of the Phase I CMP if ecological receptors are identified that would be impacted by the release from the SWMU and if the proposed corrective measures do not address the exposure pathway. The objective of the analysis would be to determine if there will be any adverse impact on the ecology resulting from the proposed cleanup objectives. Ecological assessments may also be required if institutional controls (such as capping, etc.) are the selected corrective measures if the site has ecological receptors. This assessment should be developed in accordance with USEPA guidance. A review of the ecological receptors and the exposure pathways should be included in Phase I of the CMP for each SWMU or SWMU group.

3.0 Phase II of the CMP

Phase II of the CMP includes selection of the corrective measure to be taken and developing a basis for completing the final design of the measure. This effort should be documented in a Conceptual Design Report which describes the proposed corrective measure for each SWMU and provides a conceptual design for these measures. The main criteria for Illinois EPA review is whether the proposed corrective measures are able to achieve the final cleanup objectives established by the Permittee and the Illinois EPA in Phase I of the CMP and/or provide the institutional controls to prevent the migration of contaminants from the SWMU of concern necessary. Based upon a review of the Conceptual Design Report, the Illinois EPA may approve the corrective measures, require revisions to the proposed corrective measures, or require that a totally new corrective measures proposal be submitted to the Illinois EPA.

The Conceptual Design Report should contain the following sections:

1. <u>Introduction/Purpose</u>. The report should include an introductory section which contains: (1) general background information regarding the project; (2) the purpose and goals of the submittal; and (3) the scope of the project.

- 2. <u>Existing Site Conditions</u>. The report should contain a summary of the RFI activities conducted for each of the SWMUs of concern and the results of Phase I of the CMP for each SWMU. RFI investigation analytical results should be provided in tabular form, and maps depicting both the horizontal and vertical extent of contamination at the site should be provided.
- 3. Evaluation for Potential Future Migration. Based on the existing site conditions, a conceptual model of the site should be developed and presented in this report. The potential for additional future migration of contamination for each of the SWMUs of concern must then be evaluated, especially those SWMUs which have been determined to have released hazardous waste/hazardous constituents to the groundwater. It may be helpful to develop conceptual models for contaminant migration. Of special concern in this evaluation are (1) the physical properties of the contaminants (solubility, volatility, mobility, etc.) and (2) existing site conditions (types of soil present, location of contamination, hydrology, geology, etc.).
- 4. <u>Corrective Measures Objectives</u>. The report should discuss the general objectives of the proposed corrective measures to be constructed/installed for each SWMU at the subject facility, and the ability of the proposed corrective measures to achieve the established Corrective Measures cleanup objectives.
- 5. <u>Identification of Options Available</u>. The report should contain a discussion of the various options available to achieve the corrective measures objectives for each SWMU. This discussion should identify: (1) a general overview of each option available, including how the option will achieve the stated objective; (2) the advantages associated with each option; (3) the disadvantages associated with each option and (4) an estimate of the cost associated with choosing each option as the corrective measure.
- 6. <u>Description of Selected Corrective Measure</u>. The report should contain a qualitative discussion of the corrective measure chosen, along with the rationale which was used to select this measure from all those identified initially. This discussion should include documentation that the selected correction measure will be effective.
- 7. <u>Identification of Design Criteria</u>. The report should identify what information must be available to design the selected corrective measure.
- 8. Review of Available Information. The report should contain an evaluation of the existing information to ensure that sufficient information is available to complete the design of the selected corrective measure. If insufficient information is available, then the report should contain procedures for collecting the required information. The level of detail required for this additional data collection should be similar to that provided in RFI workplans.
- 9. <u>Procedures for Completing the Design</u>. The report should contain a description of the procedures which will be followed to complete the design of the corrective measure. This should include as appropriate:

- a. Identification of the references and established guidance which will be used in designing the selected corrective measure. Justification for the selection of this procedure should also be provided.
- b. A description of the procedures which will be used to complete the design of the corrective measure.
- c. Identification of assumptions to be used in the design, and the impact these assumptions have on the overall corrective measure;
- d. Significant data to be used in the design effort;
- e. Identification and discussion of the major equations to be used in the design effort (including a reference to the source of the equations);
- f. Sample calculations to be used in the design effort;
- g. Conceptual process/schematic diagrams;
- h. A site plan showing a preliminary layout of the selected corrective measure;
- i. Tables giving preliminary mass balances;
- j. Site safety and security provisions.

The information presented herein will form the continuing technical basis for the detailed design of the system and the preparation of construction plans and specifications.

- 10. <u>Identification of Required Permits</u>. The report should identify and describe any necessary permits associated with the selected corrective measure, as well as the procedures which will be used to obtain these permits.
- 11. <u>Long-lead Procurement Considerations</u>. The report should identify any elements/components of the selected corrective measure which will require a large amount of time to obtain/install. The following issues should also be discussed: (1) the reason why it will take a large amount of time to obtain/install the item; (2) the length of time necessary for procurement and (3) recognized sources of such items.
- 12. <u>Project Management</u>. The report should contain information regarding the tasks and personnel which will be involved in completing the design of the selected corrective measure. A schedule for completing the design should also be provided.

4.0 Phase III of the CMP

Once the Illinois EPA approves the Conceptual Design Report, the facility should complete the design of the approved corrective measure (Phase II of the CMP). Upon final completion of the design, the Final Design Report, consisting of final plans, specifications, construction workplan, etc. must be submitted to the Illinois EPA for review and approval. Typically, the Illinois EPA requires that these documents be submitted to the Illinois EPA within 120 days after the Conceptual Design Report has been approved. The final design report of the CMP must be submitted to the Illinois EPA in the form of a Class II permit modification in accordance with 35 Ill. Adm. Code Part 703. Should implementation of the corrective measures include construction/installation of additional structures which would meet the definition of RCRA regulated units, the Illinois EPA may notify the Permittee that the submittal will be reviewed as a Class III permit modification in accordance with 35 Ill. Adm. Code Part 703. In any event, as the submittal is either a Class II or Class III modification to the facility permit, the Illinois EPA response will be handled in accordance with the procedures for Class II and Class III modifications as outlined in 35 Ill. Adm. Code Parts 703 and 705. Several documents must be submitted to the Illinois EPA as part of Phase III of the CMP. The following text describes the expected contents of the various documents which should be developed and submitted to the Illinois EPA as part of Phase III of the CMP.

- 1. <u>Final Design Report and Construction Workplan</u>. The Final Design Report and Construction Workplan must contain the detailed plans, specifications and drawings needed to construct the corrective measure. In addition, this document must contain (1) calculations, data etc. in support of the final design; and (2) a detailed description of the overall management strategy, construction quality assurance procedures and schedule for constructing the corrective measure. It must be noted that the approved Conceptual Design Report forms the basis for this final report. The information which should be provided in this document includes:
 - a. <u>Introduction/Purpose</u>. This portion of the document should (1) provide background information regarding the project, (2) describe the purpose and goals of the project, and (3) describe the scope of the project.
 - b. <u>Detailed Plans of the Design System</u>, including the following:
 - 1. Plan views;
 - 2. Section and supplementary views which, together with the specifications and general layouts, facilitate construction of the designed system:
 - 3. Dimensions and relative elevations of structures;
 - 4. Location and outline form of the equipment;
 - 5. Ground elevations; and

- 6. Descriptive notations, as necessary, for clarity.
- c. <u>Technical Specifications</u>. Complete technical specifications for the construction of the system. The specifications accompanying construction drawings should include, but are not limited to, the following:
 - 1. All construction information, not shown in the drawings, which is necessary to inform the contractor in detail as to the required quality of materials, workmanship, and fabrication of the corrective measure;
 - 2. The type, size, strength, operating characteristics and rating of the equipment;
 - 3. The complete requirements for all mechanical and electrical equipment, including machinery, valves, piping and jointing of pipe;
 - 4. Electrical apparatus, wiring and meters;
 - 5. Construction materials:
 - 6. Chemicals, when used;
 - 7. Miscellaneous appurtenances;
 - 8. Instruction for testing materials and equipment as necessary; and
 - 9. Availability of site background information (such as soil boring, etc.).
- d. <u>Project Management</u>. A description of the construction management approach, including the levels of authority and responsibility, lines of communication and qualifications of key personnel who will direct corrective measures construction/installation must be provided in the workplan.
- e. <u>Construction Quality Assurance/Quality Control</u>. The workplan must contain a construction quality assurance/quality control plan describing the procedures which will be followed to ensure the corrective measure is constructed/installed in accordance with the approved plans and specifications.
- f. <u>Schedule</u>. The workplan must contain a schedule for completion of all major activities associated with construction/installation of the selected corrective measures. All major points of the construction/installation should be highlighted, with a graphical representation of the project schedule included.

- g. <u>Waste Management Practices</u>. This portion of the document should identify the wastes anticipated to be generated during the construction/installation of the corrective measures, and provide a description of the procedures for appropriate characterization and management of these wastes.
- h. Required Permits. This portion of the report should contain copies of permit applications submitted to other Bureaus of the Illinois EPA for the selected corrective measure. If it is determined that no permit is required for construction/installation and implementation of the corrective measures, rationale and justification must be provided to support this contention.
- 2. Operation and Maintenance Plan. An Operation and Maintenance Plan must be developed and submitted as part of Phase III of the CMP. This plan should outline the procedures for performing operations, long term maintenance, and monitoring of the corrective measure.
 - a. <u>Introduction and Purpose</u>. This portion of the document should provide a brief description of the facility operations, scope of the corrective measures project, and summary of the project objectives.
 - b. <u>System Description</u>. This portion of the document should provide a description of the corrective measure and significant equipment, including manufacturer's specifications. This portion of the plan should also include a narrative of how the selected system equipment is capable of complying with the final engineered design of the corrective measure.
 - c. <u>Operation and Maintenance Procedures</u>. This portion of the document should provide a description of the normal operation and maintenance procedures for the corrective measures system, including:
 - a. Description of tasks for operation;
 - b. Description of tasks for maintenance;
 - c. Description of prescribed treatment or operation conditions; and
 - d. Schedule showing the frequency of each operation and maintenance task.
 - d. <u>Inspection Schedule</u>. This portion of the document should provide a description of the procedures for inspection of the corrective measures system, including problems to look for during the inspection procedure, specific inspection items, and frequency of the inspections.
 - e. <u>Waste Management Practices</u>. This portion of the document should provide a description of the wastes generated by operation of the corrective measures, and the appropriate procedures for proper characterization and management of these wastes.

- f. <u>Contingency Procedures</u>. This portion of the document should provide a description of the procedures which will address the following items:
 - 1. System breakdowns and operational problems including a list of redundant and emergency backup equipment and procedures;
 - 2. Alternative procedures (i.e., stabilization) which are to be implemented in the event that the corrective measure suffers complete failure. The alternative procedures must be able to prevent release or threatened releases of hazardous wastes/hazardous constituents which may endanger human health and the environment, or exceed cleanup standards.
 - 3. Notification of facility and regulatory personnel in the event of a breakdown in the corrective measures, including written notification identifying what occurred, what response action is being taken and any potential impacts on human health and the environment.

5.0 Phase IV of the CMP

Once the reports required by Phase III above are approved by the Illinois EPA, construction/installation of the approved corrective measure must commence. During this period, quarterly reports should be submitted which contain the following information:

- 1. Summary of activities completed during the reporting period;
- 2. An estimate of the percentage of the work completed;
- 3. Summaries of all actual or proposed changes to the approved plans and specifications or their implementation;
- 4. Summaries of all actual or potential problems encountered during the reporting period;
- 5. Proposal for correcting any problems; and
- 6. Projected work for the next reporting period.

Upon completion of construction/installation of the approved corrective measure, a Construction Report must be submitted to the Illinois EPA documenting that these efforts were carried out in accordance with the Illinois EPA approved plans and specifications. This report should contain a thorough description of the efforts that went into constructing/installing the corrective measure and demonstrate that the procedures in the Illinois EPA-approved Final Design Report were followed during this effort. Such a report should be formatted in a logical and orderly manner and contain the following information:

- 1. An introduction discussing the background of the project and the purpose and scope of the corrective measure described in the report.
- 2. Identification of the plans, technical specifications and drawings which were used in constructing/installing the corrective measure. These specifications and drawings should have been approved by the Illinois EPA during Phase III.
- 3. Identification of any variations from the Illinois EPA approved plans, technical specifications and drawings used in construction/installing the corrective measure.

 Justification regarding the need to vary from the approved plans and specifications must also be provided.
- 4. A description of the procedures used to construct/install the corrective measure, including the procedures used for quality assurance and quality control.
- 5. As-built drawings, including identification of any variations from the approved plans, technical specifications and drawings.
- 6. A summary of all test results from the construction/installation effort, including quality assurance/quality control testing.
- 7. Actual test results, including quality assurance/quality control test results. These results should be located in an attachment/appendix and be well organized.
- 8. Identification of any test results which did not meet the specified value and a description of the action taken in response to this failure, including re-testing efforts.
- 9. Photographs documenting the various phases of construction.
- 10. A detailed discussion of how the construction/installation effort met the requirements of the approved Final Design Report.
- 11. A certification by an independent qualified, registered professional engineer and by an authorized representative of the owner/operator (the authorized representative must meet the requirements of 35 IAC 702.126). The wording for this certification must also meet the requirements of 35 IAC 702.126.

6.0 Phase V of the CMP

Once the corrective measure has been constructed/installed, it must be operated, maintained and monitored in accordance with the approved operations and maintenance plans. During this period, quarterly reports must be submitted to the Illinois EPA documenting the results of these efforts. These reports should contain the following information:

- 1. <u>Introduction</u>. This portion of the document should provide a brief description of the facility operations, scope of the corrective measures project, and summary of the project objectives.
- 2. <u>System Description</u>. This portion of the document should provide a description of the corrective measures constructed/installed at the site, and identify significant equipment.
- 3. <u>Monitoring Results</u>. This portion of the document should provide a description of the monitoring and inspection procedures to be performed on the corrective measures. The document should include a summary of the monitoring results for the corrective measures, including copies of any laboratory analyses which document system effectiveness, and should provide a description of the monitoring procedures and inspections performed. Copies of all laboratory analytical results which document system monitoring must be provided.
- 4. <u>Effectiveness Determination</u>. This portion of the document should provide calculations and other relevant documentation that demonstrates the effectiveness of the selected corrective measure in remediating/stabilizing contamination to the extent anticipated by the corrective measures final design. Copies of relevant analytical data should be provided to substantiate this determination.
- 5. System Effectiveness Recommendation. Based upon the results of the effectiveness determination required under 4. above, this portion of the report should provide a recommendation on continuance of the corrective measure. If the corrective measure is not performing in accordance with the final design, a recommendation on revisions or expansion of the system should be provided. Additionally, based upon the monitoring results, a schedule for achieving the cleanup objectives should be included with each evaluation.

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ILLINOIS ENVIRONMENTAL PROTECTION AGENCY

1021 North Grand Avenue East, P.O. Box 19276, Springfield, Illinois 62794-9276 – (217) 782-3397 James R. Thompson Center, 100 West Randolph, Suite 11-300, Chicago, IL 60601 – (312) 814-6026

ROD R. BLAGOJEVICH, GOVERNOR

DOUGLAS P. SCOTT, DIRECTOR

217-524-3300

June 21, 2007

Certified Mail 7004 2510 0001 8617 0925

Mr. Claude Harmon Manager, Health, Safety, Security & Environmental CITGO Petroleum Corporation 135th Street and New Avenue Lemont, Illinois 60439-3659

Re:

1978030004 -- Will County

CITGO, Lemont Refinery

ILD 041 550 567 Log No: B-162R

Administrative Record File

Dear Mr. Harmon:

The Illinois Environmental Protection Agency has reviewed the application to renew the RCRA Post-Closure permit for the four land treatment units dated April 23, 2007 and received April 23, 2007 for the above referenced facility. A list of deficiencies identified during this initial completeness review is included in the attached Notice of Deficiency (NOD).

Each of the deficiencies must be addressed before the Agency can begin the technical review of your permit application. Your response must be postmarked no later than July 31, 2007. The response needs to be in a format that allows incorporation of the new information into the appropriate sections of your application. To allow for a proper review of this new information, the location of the response to each comment needs to be identified in a list cross-referencing these items. Each revised page or drawing must have the revision date identified on it for tracking purposes.

The permit application form LPC-PA23 must be properly completed and signed, and provided with your submission. The original and three copies of the new information need to be submitted to the following address:

Illinois Environmental Protection Agency Bureau of Land -- #33 Permit Section 1021 North Grand Avenue East Post Office Box 19276 Springfield, IL 62794-9276 CITGO, Lemont Refinery B-162R Completeness Review #1 NOD Page 2

In addition to the NOD, the Agency has the following comments with respect to operating the LTA as a CAMU. Pursuant to a condition in the original RCRA permit, the Agency received a Class 3 permit modification to use the land treatment area (LTA) a corrective action management unit (CAMU) on January 6, 1998 (Log # B-162-M-9). The application was deemed to be substantially complete, and therefore grandfathered in under the older (original) CAMU regulations.

At this point in time, the Agency feels it would be in the best interest of both CITGO and the Agency for CITGO to incorporate the request to operate the LTA as a CAMU into the pending permit renewal application (B-162R). Combining the two documents should shorten the review time, and will allow the Agency (and CITGO) to combine the public notice requirements for the two applications.

It should be noted that the Agency has concerns about the ability of the LTA to be used as a CAMU in its present form. In particular, we are concerned that run-off and erosion of the LTA may carry hazardous constituents outside of the permitted boundaries of the units, and that the build up of metals in the soils may inhibit or reduce the ability of microorganisms to degrade organics in wastes placed in the LTA/CAMU for treatment. The Agency welcomes the opportunity to meet with CITGO to discuss these issues prior to submittal of the response to this letter.

If you have any questions regarding this letter, please feel free to call Rob Watson, P.E. of my staff at 217-524-3265.

Sincerely,

Stephen F. Nightingale, P.E.

Manager, Permit Section

Bureau of Land

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Attachment

cc: Dale Meyer, USEPA Region V, w/attachment

ATTACHMENT

Completeness Review #1 NOD CITGO, Lemont Refinery RCRA Permit Log No: B-162R

GENERAL

- 1. <u>IEPA Form LPC-PA23</u>: The name and address of the owner is not provided in Section II of this form. This information is required for all RCRA permit applications.
- 2. <u>IEPA Form LPC-PA23:</u> The owner's name and signature are not provided in Section IV of this form. This information is required for all RCRA permit applications.
- 3. <u>IEPA Certificate of Authenticity Form:</u> The owner's name and signature are not provided on this form.
- 4. The Part A indicates that the owner and operator are different companies. However, Sections A.1.1 and A.2.2 of the application state that the Vice President & General Manager of the refinery (Bob Kent) has signatory authority as both the owner and operator. Written documentation of this authority needs to be included as part of the application.
- 5. <u>IEPA Form LPC-PA23</u>: The name, signature, and seal of a Professional Engineer are not provided on this form. Most of the information in the application is technical in nature. Therefore, the name, signature, and seal of a Professional Engineer are required on the LPC-PA23 form.

SECTION A

6. Sections A.4.1.4, and A.4.2.2: These sections of the decision guide require the permittee to provide documentation that they have complied with the applicable public involvement requirements of RCRA. To date, this documentation has not been received by the Illinois EPA. Documentation of all notices required by Section A.4 of the decision guide must be provided with the response to these completeness review comments. The documentation must meet the requirements specified in the RCRA decision guide.

SECTION B

7. <u>Section B.2.1.2</u>: An index or other map 'key' that shows the portions of the facility covered by each of the Figures B-2 thru B-6 needs to be provided

CITGO, Lemont Refinery B-162R Completeness Review #1 NOD

- 8. <u>Section B.2.1.2</u>: All information on Figures B-2 thru B-6 needs to be re-evaluated for accuracy. The following basic map requirements need to be corrected:
 - a. The contour lines need to include elevations
 - b. A number of contour lines simply stop
 - c. Some contour lines intersect
 - d. The Des Plaines River is not labeled
 - e. An intermittent stream is located in the Des Plaines River
 - f. The property lines intersect the Chicago Ship and Sanitary Canal, and stop
 - g. The four individual land treatment areas need to be identified on Figure B-5
 - h. Access control needs to be identified on the figures.
- 9. <u>Section B.3.2</u>, <u>Floodplain Standard</u>: The facility property line and location of the LTAs need to be identified and labeled on the FIRM map provided as Figure B-7.

SECTION E

- 10. <u>Section E.2</u>: Interim Status Groundwater Monitoring Data was not complete. Although the facility provided by reference the location of the summary of the groundwater monitoring data obtained during interim status, the facility must provide a general discussion concerning interim status groundwater activities.
- 11. <u>Section E.4</u>: Topographic Map Requirement was not complete. The locations of all groundwater monitoring wells and the point of compliance must be depicted. All requirements of 35 Ill. Adm. Code 703.183(s) and 703.185(c) must be met.
- 12. Section E.6.1: Constituents to be Monitored was not complete. The renewal application only provided a list of indicator parameters. The facility must provide a list of indicator parameters, waste constituents or reaction products to be used in providing a reliable indication of the presence of hazardous constituents in groundwater in accordance with 35 Ill. Adm. Code 724.198(a) and 703.185(f)(1).

SECTION F

13. <u>Section F.1.3</u>, <u>Barrier and Controlled Entry</u>: Figures B-2 thru B-6 need to show the barrier system (fence) surrounding the active portion of the facility and the gates used for access control.

CITGO, Lemont Refinery B-162R Completeness Review #1 NOD

SECTION I

- 14. The unsaturated zone monitoring (UZM) program in the original permit required soil cores to be collected from the LTA and analyzed for the parameters specified in the permit. The application to renew the RCRA permit needs to include a report of the analytical results from all soil cores collected from the land treatment area (LTA) to date. The report needs to include the following:
 - a. Copies of the actual analytical reports,
 - b. A map (or maps) showing the locations of all sample points,
 - c. A discussion of the analytical results,
 - d. A discussion of how/if any samples that showed a statistically significant increase (SSI) was resolved, and
 - e. A table summarizing the results of the UZM program that includes (at a minimum) all sample locations, dates, and analytical test results. Any sample results that constitute a SSI should be highlighted on the table.
- 15. The financial assurance documents provided in Appendix I.6 are dated 2005. The most recent financial assurance documents need to be provided with the permit application.

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Mary A. Gade, Director

2200 Churchill Road, Springfield, IL 62794-9276

217/524-33.00

September 18, 1997

CERTIFIED MAIL P 344 343 658

Mr. Claude Harmon Manager, Operations Environmental CITGO, Lemont Refinery 135th Street and New Avenue Lemont, Illinois 60439-3659

Re: 1978030004 -- Will County CITGO, Lemont Refinery ILD041550567 RCRA Permit Log No: B-162 Administrative Record File

Dear Mr. Harmon:

Attached is a RCRA Hazardous Waste Management Post Closure permit. The final permit is based on the administrative record contained in the Agency's files. The contents of the administrative record are described in 35 Illinois Administrative Code (Ill. Adm. Code) Section 705.211. Read this document carefully. Failure to meet any portion of the permit could result in civil and/or criminal penalties.

Within 35 days after the notification of a final permit decision, the permittee may petition the Illinois Pollution Control Board to contest the issuance of the permit. The petition shall include a statement of the reasons supporting a review, including demonstration that any issues raised in the petition, were previously raised during the public comment period. In all other respects the petition shall be in accordance with the requirements for permit appeals as set forth in 35 Ill. Adm. Code Part 105. Nothing in this paragraph is intended to restrict appeal rights under Section 40(b) of the Environmental Protection Act (35 Ill. Adm. Code 705.212(a)).

A copy of Illinois EPA's responses to significant comments on the Draft Permit issued on September 26, 1996, is also attached to this letter. Only UNO-VEN (CITGO) and Unocal submitted comments on the Draft Permit. The Agency's responses were developed as a result of reviewing the comments submitted by UNO-VEN (CITGO) dated December 23, 1996 and received by the Agency on December 30, 1996. Unocal's comments were included as Attachment III to the December 23, 1996 submittal. Additional comments were e-mailed by CITGO on June 2, 1997. The Illinois EPA also considered the letter from Geraghty & Miller dated December 31, 1996 and received on January 2, 1997 as comments on the draft permit.

If you have any questions concerning this draft permit, please contact Rob Watson, P.E. at 217/524-3300.

Sincerely,

Edwin C. Bakowski, P.E.

Manager, Permit Section

Bureau of Land

· IHR

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Attachment 1: Final RCRA Permit

Attachment 2: IEPA's Response to Comments

cc: USEPA Region V, Hak Cho

Mark Robbins, Radian

ATTACHMENT 1 RCRA POST-CLOSURE PERMIT

for

CITGO, Lemont Refinery

1978030004 Log No. B-162 Mary A. Gade, Director

2200 Churchill Road, Springfield, IL 62794-9276

RCRA Log NO. B-162

ILLINOIS ENVIRONMENTAL PROTECTION AGENCY

HAZARDOUS WASTE MANAGEMENT

RCRA POST-CLOSURE PERMIT

IEPA # 1978030004 -- Will County USEPA ILD 041550567 CITGO, Lemont Refinery RCRA Post-Closure Permit - Admin. Record File

Issue Date: September 18, 1997 Effective Date: October 23, 1997 Expiration Date: October 23, 2007

CITGO Lemont Refinery 135th Street and New Avenue Lemont, Illinois 60439-3659

A Post-Closure permit is hereby granted pursuant to the Resource Conservation and Recovery Act, Illinois Environmental Protection Act, and Title 35 Illinois Administrative Code (I.A.C.) parts 702, 703, 705, and 720 through 729 to CITGO (herein known as the permittee). The site is located in the City of Lemont, Will County, Illinois at 135th Street and New Avenue.

This post closure permit consists of the conditions contained herein (including those in any attachments and appendices) and applicable regulations contained in the Illinois Environmental Protection Act and Title 35 I.A.C. Parts 702, 703, 705 and 720 through 729 in effect on the effective date of this permit. The Environmental Protection Act (Ill. Rev. Stat., Chapter 111 ½, Section 1039) grants the Illinois Environmental Protection Agency the authority to impose conditions on permits which are issued. This Permit contains 160 pages including Attachments A through I.

If you have any questions regarding this draft permit, please contact Rob Watson, P.E. at 217/524-3300.

Edwin C. Bakowski, P.E.

Elevin C. Bahow

Manager, Permit Section

Bureau of Land

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Attachments

RCRA POST-CLOSURE PERMIT

CITGO Lemont Refinery

ILD No. 041550567

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Page i

DESCRIPTION OF THE FACILITY

The CITGO Lemont Refinery is a petroleum refinery with a rated capacity of 153,000 barrels per day. The refinery was built in the 1920's. Globe Oil & Refining Co. purchased the refinery in 1928. Pure Oil Company purchased the facility in 1954. Union Oil Company merged with Pure Oil in 1965. The new Chicago Refinery was constructed between 1967 and 1970. UNOCAL Corporation (UNOCAL) operated the refinery until 1989 at which time the UNO-VEN Company (UNO-VEN) was formed through a joint venture between UNOCAL and Petroleus de Venezuela, SA (PDVSA). In 1997 the ownership of the refinery was transferred to PDV Midwest Refining L.L.C., and the operations were transferred to CITGO Petroleum Corporation.

The refinery produces the following major types of products: liquefied petroleum gas, gasoline, petrochemical solvents, aviation turbine fuels, heating oils, diesel fuels, and petroleum coke. Approximately 9 different hazardous wastes are generated at the refinery. The total acreage of the refinery is approximately 900 acres. The refinery presently employs about 750 people. It is located in the City of Lemont, Will County, Illinois, at 135th Street and New Avenue.

This RCRA Post-Closure permit for the facility (Log No. B-162) is for the closure and post-closure care for the four land treatment areas. The total acreage of the four land treatment areas is 13.5 acres. Area I was opened in 1973 and the remaining three areas were opened in 1980. API separator sludge (K051) which is a hazardous waste was treated at the site until September, 1981. Since that time, only nonhazardous wastes have been applied to the land treatment plots. These nonhazardous wastes included clear well sludge, cooling tower sludge, heavy oil sludge, stormwater basin dredgings and water/wastewater treatment sludges. The majority of the wastes land treated were stormwater basin dredgings and water/wastewater treatment sludges.

Pre-1980 (pre-RCRA) activities at UNO-VEN's Chicago Refinery included the storage and treatment of wastes in containers, tanks, piles, and surface impoundments.

Page ii

List of Plans and Documents Contained in the Approved Permit Application

Under Illinois solid and hazardous waste regulations, the Permittee has prepared the following formal plans and documents covering various facets of the design, operation and monitoring of hazardous waste management units. The location of each plan or document in the Approved Permit Application is also identified below.

	Plan or Document	Location in the Approved Permit Application	
1.	Groundwater Monitoring Program	Section E	
2.	Unsaturated Zone Monitoring Plan	Section I, Appendix B of Appendix I-2	
3.	Inspection Plan	Section I, Appendix A of Appendix I-2	
4.	Contingency Plan	Section G	
5.	Training Program	Section H	
6.	Closure Plan	Section I, Appendix I-1	
7.	Post-Closure Plan	Section I, Appendix I-2	
8.	Identification of SWMUs	Section L	
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SECTION I RCRA CLOSURE

A. INTRODUCTION

The RCRA Post-Closure Permit application addresses the four land treatment units (D81) at the CITGO Refinery in Lemont, Illinois. As of the date of this permit, these units have not been certified closed. Therefore, this Post-Closure permit also includes provisions to close these units prior to initiating the post-closure maintenance and monitoring period.

The permittee has indicated that they will submit a permit modification request to designate the land treatment units as a Corrective Action Management Unit (CAMU) and operate them in conjunction with the corrective action program identified in Section IV of this permit. To allow for this scenario, this permit includes provisions to postpone the closure of these units, if applicable.

B. UNIT IDENTIFICATION

The Permittee shall perform RCRA Closure activities at the following hazardous waste management units in accordance with the Approved Permit Application and subject to the terms and conditions of this permit:

Type of Waste Unit	Unit <u>Name</u>	Size	Description of Waste Containe	
Land Treatment	Area I	5.5 acres	API Separator	Sludge (K051)
Land Treatment	Area II	4.2 acres	API Separator	Sludge (K051)
Land Treatment	Area III	1.2 acres	API Separator	Sludge (K051)
Land Treatment	Area IV	2.6 acres 13.5 acres total	*	Sludge (K051)

The locations of these hazardous waste management units (HWMUs) are shown on Drawings 1 and 2 in the Closure Plan (Appendix I-1) of the Approved Permit Application.

1978030004 CITGO, Lemont Refinery RCRA Log No. B-162

C. CLOSURE BY REMOVAL DEMONSTRATION

- 1. Pursuant to the requirements of Title 35 Illinois Administrative Code (35 IAC) Section 703.121(b), owners and operators of surface impoundments that certified closure after January 26, 1983, (according to 35 IAC 725.215) shall have post-closure permits, unless they demonstrate closure by removal as provided under Sections 703.159 and 703.160. The Permittee must either conduct a closure by removal demonstration for the surface impoundment (S04) closed in 1986 under Closure Log No. C-193 or obtain a post-closure permit for this unit.
- 2. Within 30 days of the effective date of this permit the Permittee shall provide one of the following for the surface impoundment (S04) closed under Closure Log No. C-193: 1) documentation that the closure of the unit was conducted in accordance with the substantive requirements of 35 IAC 724 closure requirements, 2) a work plan for performing a closure by removal demonstration for the unit, or 3) a declaration of their intent to pursue a post-closure permit for this unit.
- 3. If the closure of the surface impoundment (S04) closed under Closure Log No. C-193 is determined to not meet the 35 IAC 724 closure performance standards, this determination may be appealed to the Illinois Pollution Control Board pursuant to 35 IAC Part 105.
- 4. If additional investigation or remediation of any contaminated soil/groundwater at the surface impoundment is deemed necessary, it shall be coordinated with the corrective action activities for the entire facility.

D. GENERAL CLOSURE REQUIREMENTS

- 1. Within 60 days of the effective date of this permit, the Permittee shall submit one of the following:
 - a. A Class 3 permit modification request to operate the land treatment units as a CAMU in conjunction with the corrective action program identified in Section IV of this permit,
 - b. Documentation to justify the cover system proposed in the Approved Permit Application for the four land treatment areas, or

c. An alternate closure plan and cover system design for the four land treatment areas.

The information submitted in response to this condition shall be in the form of a permit modification request. The submittal shall meet the requirements for permit modification requests at 35 IAC 703 Subpart G: Changes to Permits. The Illinois EPA shall review each submittal and either issue comments or a modified permit in response to the submittal. Final Illinois EPA approval or disapproval of the document will be appealable pursuant to Sections 39(a) and 40(a) of the Act.

- 2. A submittal required by Condition I.D.1 must include drawings which show all of the areas outside of the perimeter of each land treatment area where hazardous constituents were found at statistically significant concentrations over background. At a minimum this includes the following perimeter sample locations identified in the 1995 Site Characterization Report as: LAI-4PS, LAI-12PS, LAI-15PS, LAII-4PS, LAII-5PS, LAII-1PS, LAII-1
- 3. The Permittee shall maintain and monitor the groundwater monitoring system in accordance with the Approved Permit Application and the conditions in this permit during the closure period.
- 4. The Permittee shall maintain and monitor the unsaturated zone monitoring system in accordance with the Approved Permit Application and the conditions in this permit during the closure period.
- 5. Within 30 days of the effective date of this permit, the Permittee shall install silt fences around the sludge piles in Area I and along the perimeter of each land treatment unit to prevent sediment and/or hazardous waste constituents from reaching the intermittent stream. The locations and design of these devices shall be in accordance with the Land Treatment Facility Silt Fence Installation Plans dated July 3, 1997.
- 6. When closure is complete the owner or operator must submit to the Illinois EPA certification both by the owner or operator and by a qualified, independent professional engineer registered in the State of Illinois that the facility has been closed in accordance with the specifications in the approved closure plan and the conditions in this permit. This certification must be received at the Illinois EPA within sixty (60) days after construction of the cover system is completed. This date may be revised if UNO-VEN finds that additional time is necessary to complete all required closure activities and demonstrates to the Illinois EPA that it is attempting to complete closure in a timely manner.

- 7. The closure certification form provided as Attachment F must be used when the Permittee submits the closure certification. Signatures must meet the requirements of 35 Ill. Adm. Code Section 702.126. The independent engineer should be present at all critical, major points (activities) during the closure. These might include soil sampling, soil removal, backfilling, final cover placement, etc. The frequency of inspections by the independent engineer must be sufficient to determine the adequacy of each critical activity.
- 8. The Professional Engineering Practice Act of 1989 (225 ILCS 325/1 et. seq.) requires that any person who practices professional engineering in the State of Illinois or implies that he/she is a professional engineer must be registered under the Professional Engineering Practice Act of 1989 (225 ILCS 325.4). Therefore, any certification or engineering services which are performed for a closure plan in the State of Illinois must be done by an Illinois P.E.

Plans and specifications, designs, drawings, reports, and other documents rendered as professional engineering services, and revisions of the above must be sealed and signed by a professional engineer in accordance with Section 14 of the Professional Engineering Practice Act of 1989 (225 ILCS 325.14).

- 9. As part of the closure certification, to document the closure activities at your facility, the Permittee must submit a Closure Documentation Report which includes:
 - a. The volume of any waste and waste residue removed from each unit. The term waste includes wastes resulting from decontamination activities (if applicable).
 - b. Scaled drawings showing the horizontal and vertical boundaries from which waste or contaminated soil was removed (if applicable).
 - c. A description of the method of waste handling and transport (if applicable).
 - d. The waste manifest numbers (if applicable).
 - e. Copies of the waste manifests (if applicable).
 - f. A chronological summary of closure activities.
 - g. Color photo-documentation of closure. Document conditions at all four land treatment areas and the intermittent stream before, during, and after closure.

- h. Information documenting the results of all required soil sampling/analysis efforts. At a minimum, this must include a summary of the unsaturated zone monitoring results and the samples associated with construction of the cover system. The goal of this presentation should be to present, in a logical manner, the activities and results associated with the sampling/analysis effort. At a minimum, such a presentation should contain:
 - i. Identification of the reason for the sampling/analysis effort and the goals of the effort.
 - ii. A summary of the analytical data, including tables and all QA/QC data associated with the sampling/analysis effort.
 - iii. A scaled drawing showing the horizontal and vertical location where all soil samples were collected.
 - iv. A description of the soil sampling and analytical procedures, including sample preservation procedures and chain of custody procedures.
 - v. Identification of the test methods used and detection limits achieved, including identification of any sample preparation techniques utilized, dilutions made and interferences encountered during the analysis.
 - vi. A description of all quality assurance/quality control procedures implemented and the results of these efforts.
 - vii. Copies of the laboratory report sheets, including results of the analysis conducted on QA/QC samples. Previously submitted laboratory report sheets may be incorporated by reference.
 - viii. Visual classification of each soil sample in accordance with ASTM D-2488.
 - ix. A discussion of the data, as it relates to the overall goal of the sampling/analysis effort.
- i. Cross sections of the four land treatment units (D81). The cross sections must include all features of the land treatment facility between 3400W to 2000W and 6900N to 5300N. They must show the roads, wells, treatment units, drainage features, the layers in the cover system, the treatment zone, areas where subbase material was added, the depth to which hazardous constituents have migrated

below the treatment zone, and the geology of the undisturbed soils at least 10 feet below the lower boundary of the treatment zone. Cross section locations include, but are not limited to, the entire length of the following grid lines 2200W, 2500W, 2600W, 6700N, 6600N, 6350N, 6300N, 6250N, on Drawing 10 (page I-68k); and 6000N, 5700N, 2900W, 3200W on Drawing 9 (page I-68j) of the Closure Plan in Appendix I-1 of the permit application.

- j. Scaled drawings that show the horizontal and vertical boundaries where the Storm Water Basin Sludge was used for subbase material. The boundaries of the land treatment areas where the sludge was used must also be shown on these drawings.
- k. As-built drawings (plan views and cross sections) of the cover system and the immediate area around it. All of the following items must be identified on each drawing:
 - i. Final contours;
 - ii. All monitoring wells, piezometers and the unsaturated zone monitoring grid point benchmarks;
 - iii. All culverts, drainage channels, the intermittent stream, and the locations of all erosion control mats;
 - iv. The limits of the land treatment areas;
 - v. The locations of the first round of unsaturated zone monitoring samples;
 - vi. All roads.
- 10. Under the provisions of 29 CFR 1910 (51 FR 15, 654, December 19, 1986), cleanup operations must meet the applicable requirements of OSHA's Hazardous Waste Operations and Emergency Response standard. These requirements include hazard communication, medical surveillance, health and safety programs, air monitoring, decontamination and training. General site workers engaged in activities that expose or potentially expose them to hazardous substances must receive a minimum of 24 hours of safety and health training off site plus a minimum of one day of actual field experience under the direct supervision of a trained experienced supervisor. Managers and supervisors at the cleanup site must have at least an additional eight hours of specialized training on managing hazardous waste operations.

1978030004 CITGO, Lemont Refinery RCRA Log No. B-162

- 11. Financial assurance meeting the requirements of 35 IAC 724, Subpart H for closing the four land treatment units must be maintained until their closure is complete.
- 12. This Section of the RCRA Post-Closure Permit shall supersede all previous RCRA actions related to the RCRA closure of the four land treatment units.

E. INSPECTIONS

- 1. The Permittee shall inspect the components, structures, and equipment at the site in accordance with the Approved Permit Application and the inspection schedule in Attachment B of this permit.
- 2. The date of the first inspection shall be on the effective date of this permit.
- 3. The inspection of the land treatment facility shall be in accordance with the following schedule:
 - a. During the <u>Interim Period</u> (the effective date of this permit until construction of the cover begins or the permit is modified): the land treatment facility shall be inspected for all of the items on the Closure Period Inspection Form. The facility shall be inspected monthly and during or immediately after every precipitation event that yields 1 or more inches of rain in a 24 hour period.
 - b. During the <u>Cover Construction Period</u> (the date construction of the cover begins until vegetation is firmly established): the land treatment facility shall be inspected for the Cover System Inspection items and Storm Water Management System Inspection items on the Closure Period Inspection Form. The facility shall be inspected for these items weekly and during or immediately after every precipitation event that yields 1 or more inches of rain in a 24 hour period. The land treatment facility shall be inspected monthly for all of the items on the Closure Period Inspection Form.

The Permittee shall continue to follow the inspection procedures in this condition until the Illinois EPA approves the closure certification for the four land treatment areas.

4. The Permittee shall modify the Closure Period Inspection Form to include all of the run-off control devices required by this Permit. Each run-off control device shall be inspected to determine if: it is properly installed, functioning as designed (e.g. is it trapping sediment), and if sediment needs to be removed from the device. Each run-off control device shall be inspected at the same frequency as the other items in the Closure Period Inspection Form.

SECTION II POST-CLOSURE CARE

A. SUMMARY

Hazardous waste management units where waste is left in place must receive post-closure care for at least 30 years after completion of closure. Pursuant to 35 IAC Part 724, activities required during post-closure care include, but are not limited to (1) maintenance of final cover, (2) monitoring of the groundwater, and (3) providing financial assurance for post-closure activities.

B. UNIT IDENTIFICATION

The Permittee shall provide post-closure care for the following hazardous waste management units, in accordance with the approved permit application and subject to the terms and conditions of this permit:

Type of Waste Unit	Unit <u>Name</u>	Size	Description of Hazardous Waste Contained in the Unit
Land Treatment	Area I	5.5 acres	(K051) API Separator Sludge
Land Treatment	Area II	4.2 acres	(K051) API Separator Sludge
Land Treatment	Area III	1.2 acres	(K051) API Separator Sludge
Land Treatment	Area IV	2.6 acres 13.5 acres total	(K051) API Separator Sludge

C. MONITORING, MAINTENANCE, & RECORD KEEPING

1. The Permittee shall begin the post-closure care period for the hazardous waste management unit(s) listed in Condition II.B above after completion of closure of the unit(s) as specified in Section I of this permit. The permittee shall continue the post-closure care of these units for thirty (30) years after that date.

- 2. The Illinois EPA may require institutional controls restricting the future use of the site if necessary to protect public health and the environment, including permanent prohibition of the use of the site for purposes which may create an unreasonable risk of injury to human health or the environment. The permittee shall file such restrictions of record in the Office of the Recorder of the county in which the hazardous waste disposal site is located. If necessary, the Illinois EPA shall file such restrictions of record after any administrative and judicial challenges to such restrictions have been exhausted.
- 3. The Permittee shall not allow any use of the units designated in Condition II.B to be used in a manner that will disturb the integrity of the final cover, or any components of the containment system, or the function of the facility's monitoring systems during the post-closure care period unless such use is necessary to protect public health or the environment.
- 4. The Permittee shall implement the approved Post-Closure Plan contained in the Approved Permit Application. All post-closure care activities must be conducted in accordance with the conditions in this permit and the provisions of the approved Post-Closure Plan.
- 5. The Permittee must request a permit modification to authorize a change in this permit or the approved Post-Closure Plan. This request must be in accordance with applicable requirements of Parts 702, 703 and 724 and must include a copy of the amended Post-Closure Plan for approval by the Illinois EPA.
- 6. The Permittee shall maintain and monitor the groundwater monitoring system in accordance with the Approved Permit Application and the conditions in this Permit during the post-closure period.
- 7. The Permittee shall maintain and monitor the unsaturated zone monitoring system in accordance with the Approved Permit Application and the conditions in this Permit during the post-closure period.
- 8. The Permittee shall comply with the following requirements:
 - a. Maintain the integrity and effectiveness of the final cover, including making repairs to the cover as necessary to correct the effects of settling, subsidence, erosion, cracking or other events.

Corrective action shall be taken if ponding has been observed, if cracks or erosion channels greater than one inch wide have formed for whatever reason and if gas, odor, vegetative or vector problems arise, if leachate popouts or seeps are present, or if vegetation with tap roots is found to be growing in areas which are not designed to accommodate such.

- b. Prevent run-on and run-off from eroding or otherwise damaging the final cover.
- c. Protect and maintain surveyed benchmarks used in complying with surveying and record keeping requirements.
- 9. The permittee shall not grow food chain crops on the land treatment facility cover system.

D. UNSATURATED ZONE MONITORING

- 1. The Permittee shall implement the unsaturated zone monitoring program in accordance with the plans and specifications contained in the Approved Permit Application and the conditions in this permit.
- 2. The Permittee shall follow the sampling and analysis procedures according to the plans and procedures contained in the Approved Permit Application.
- 3. The Permittee shall monitor the soil immediately below the treatment zone in accordance with the procedures contained in the Approved Permit Application and the conditions in this permit to determine if any hazardous constituents have migrated out of the treatment zone.
 - a. The soil samples shall be collected annually in the fourth quarter of each year.
 - b. The soil samples shall be analyzed for the parameters listed in the following table:

UNSATURATED ZONE MONITORING PARAMETERS			
METALS	VOLATILES	SEMI-VOLATILES	
Antimony	Acetone	Acenaphthalene	
Arsenic	Benzene	Anthracene	

UNSATURATED ZONE MONITORING PARAMETERS			
METALS	VOLATILES	SEMI-VOLATILES	
Barium	n-Butylbenzene	Benzo(a)anthracene	
Beryllium	sec-Butylbenzene	Benzo(g,h,i)perylene	
Cadmium	Ethylbenzene	Butyl benzyl phthalate	
Chromium	4-Isopropyltoluene	Chrysene	
Cobalt	Methyl Ethyl Ketone	Di(n)octyl phthalate	
Lead	n-Propylbenzene	Dibenz(a,h)anthracene	
Mercury	Toluene	Fluorene	
Nickel	1,3,5 Trimethylbenzene	Indeno(1,2,3-cd)pyrene	
Selenium	1,2,4 Trimethylbenzene	Methylchrysene	
Vanadium	Xylene (total)	1-Methylnaphthalene	
		2-Methylnaphthalene	
		Naphthalene	
		Phenanthrene	
		Pyrene	

- c. Initially and every five years the soil samples shall be analyzed for the all of the parameters identified in Attachment I in addition to the parameters identified in Condition II.D.3.b. If these sampling events identify compounds that are not included in Condition II.D.3.b, those compounds shall be added to the list of compounds in Condition II.D.3.b.
- d. The number of samples collected from each area shall be as follows:

<u>Area</u>	<u>Size</u>	No. of Samples
Area I	5.5 acres	3
Area II	4.2 acres	2
Area III	1.2 acres	1
Area IV	2.6 acres	<u>2</u>
TOTAL	13.5 acres	8

- 4. The results of each sampling event shall be submitted to the Illinois EPA by January 15 of each year with the groundwater monitoring reporting requirements found in Condition III.I.2 of this permit.
- 5. The Permittee shall determine whether there is a statistically significant change over background values for any hazardous constituent to be monitored under Condition II.D.3 each time the soil core monitoring is conducted. This determination shall be made using the statistical procedures contained in the Approved Permit Application and this condition. The Permittee shall make this determination within thirty (30) days after receipt of lab analysis results.
 - a. The concentrations of organic compounds in the soil samples shall be compared to the PQLs for those compounds in a soil matrix. Sample concentrations greater than the PQLs for the compounds shall be considered to be a statistically significant increase.
- 6. If the Permittee determines, pursuant to Condition II.D.5, that there is a statistically significant increase of hazardous constituents below the treatment zone, the Permittee shall notify the Illinois EPA of this finding within seven days, indicating which constituents have shown statistically significant increases, and apply for a permit modification within ninety (90) days to modify the post-closure practices at the facility to maximize the success of degradation, transformation or immobilization processes in the treatment zone.
- 7. The Permittee need not submit the modification request required by Condition II.D.6 if they successfully demonstrate that a source other than the regulated unit caused the increase or that the increase resulted from an error in sampling, analysis or evaluation within the ninety (90) day time period referenced in Condition II.D.6 above.
- 8. Within thirty (30) days of the effective date of the Permit the permittee shall submit the following to the Illinois EPA for review and approval:
 - a. The background value for each parameter listed in Condition II.D.3.
 - b. A detailed description of how the background values and statistically significant increase for the heavy metals referenced in Condition II.D.3 were established. The description must include, at a minimum, the statistical method that was used, all calculations, and an explanation of how outlyers were identified.

- c. A revised sampling and analysis plan that includes the analytical methods and PQLs for all of the parameters identified in Condition II.D.3.
- d. A revised sampling grid which includes all of Area II.

E. <u>INSPECTIONS</u>

- 1. The Permittee shall inspect the components, structures, and equipment at the four land treatment units (D81) in accordance with the approved permit application and Attachment B of this permit.
- 2. During the Post-Closure Period the land treatment facility shall be inspected for all of the items on the Post-Closure Period Inspection Form in Attachment B to this permit. The facility shall be inspected monthly <u>and</u> during or immediately after every precipitation event that yields 4 or more inches of rain in a 24 hour period.

F. NOTICES AND CERTIFICATION

- 1. After final closure has been certified, the person or office specified in the approved Post-Closure Plan must keep the plan during the remainder of the post-closure period.
- 2. No later than sixty (60) days after certification of closure of the four land treatment areas, the Permittee shall submit to the local zoning authority, or the authority with jurisdiction over local land use, and to the Illinois EPA a record of the type, location, and quantity of wastes placed within each land treatment area. For wastes placed before January 12, 1981, the Permittee shall identify the type, location, and quantity of the wastes to the best of his knowledge and in accordance with any records he has kept.
- 3. Within sixty (60) days after certification of closure of the Permittee shall:
 - a. Record, in accordance with Illinois law, a notation on the deed to the facility property -- or on some other instrument that is normally examined during title search -- that will in perpetuity notify any potential purchaser of the property that:
 - (i) The land has been used to manage hazardous wastes;
 - (ii) Its use is restricted under 35 IAC 724.217(c); and

- (iii) The survey plot and record of the type, location, and quantity of hazardous wastes placed within each land treatment area at the facility have been filed with the Illinois EPA, the County Recorder, and any local zoning authority. This plat must be prepared and certified by an independent professional registered land surveyor.
- b. Submit a certification to the Illinois EPA, signed by the Permittee, that he has recorded the notation specified in Condition II.F.3.a, including a copy of the document in which the notation has been placed.
- 4. If the Permittee or any subsequent owner or operator of the land upon which the four land treatment units are located wishes to remove hazardous wastes, hazardous waste residues, the cover, or contaminated soils, he must request a modification to this post-closure permit in accordance with the applicable requirements in 35 IAC Parts 703, 705 and 724. No wastes or cover material shall be removed until the Illinois EPA has approved the request. At a minimum, the owner or operator must demonstrate that the removal of hazardous wastes will satisfy the criteria of 35 IAC 724.217(c).
- 5. No later than sixty (60) days after completion of the established post-closure care period for each hazardous waste disposal unit, the Permittee shall submit to the Illinois EPA, by registered mail, a certification that the post-closure care for the hazardous waste disposal unit was performed in accordance with the specifications in the approved Post-Closure Plan. The certification must be signed by the owner or operator and an independent professional engineer registered in the State of Illinois.

 Documentation supporting the independent registered professional engineer's certification must be furnished to the Illinois EPA upon request until the Illinois EPA releases the Permittee from the financial assurance requirements for post-closure care.

ECB:WRW:bjh\971075S.WPD

SECTION III GROUNDWATER DETECTION MONITORING PROGRAM

A. **SUMMARY**

35 Illinois Administrative Code (35 IAC) 703.121(b), requires owners and operators of land treatment units that received waste after July 26, 1982 to have post-closure permits, unless they demonstrate closure by removal under 703.159 and 703.160. If a post-closure permit is required it must address applicable 724 groundwater monitoring, unsaturated zone monitoring, corrective action and post-closure requirements.

Parameters monitored during interim status in the uppermost aquifer below the CITGO Refinery land treatment units indicate that, at the present time, no groundwater impacts have occurred. Therefore, a detection monitoring system shall be implemented at the facility.

B. <u>IMPLEMENTATION</u>

- 1. The Permittee shall implement the groundwater detection monitoring program established herein, upon the effective date of this permit. On that date, the groundwater monitoring requirements set forth in this permit shall supersede those established in the Illinois EPA approved interim status closure plan for the land treatment units.
- 2. The Permittee shall carry out the monitoring specified in this permit on the groundwater present beneath the CITGO Refinery land treatment units in Lemont, Illinois. The uppermost aquifer beneath the land treatment units is defined as the sandy silt, silty sand, sand, and gravel layer occurring in the lower part of the Lemont Drift and the dolomite bedrock underlying the drift.
- 3. The point of compliance, defined as a vertical surface located at the hydraulically downgradient limit of the land treatment units that extends down into the uppermost aquifer underlying the land treatment units, is delineated by the wells identified as the point of compliance wells in Condition III.C.1 below and illustrated in Figure B-2, Section E, of the Approved Permit Application.

C. WELL LOCATIONS AND CONSTRUCTION

The Permittee shall install and maintain a groundwater monitoring system at the point of compliance as specified below:

1. The Permittee shall maintain the groundwater monitoring wells (UA-Series) and piezometers identified in the table below to allow for the collection of groundwater samples and elevations from the uppermost aquifer. The location of these wells is specified in Appendix E-2, Figure 3-1 of Section E of the Approved Permit Application.

IEPA Well <u>No.</u>	Facility Well <u>No.</u>	Well Depth <u>(ft)</u>	Boring Depth Elevation (ft MSL)	Screen Depth Interval <u>(ft)</u>
G01D	UA-1*	106.90	611.90	92.1 - 102.1
G02D	UA-2**	86.60	605.64	70.0 - 80.0
G03D	UA-3**	89.55	608.18	74.7 - 84.7
G04D	UA-4**	87.00	608.98	72.1 - 82.1
G05D	UA-5**	92.60	602.24	72.1 - 82.1
G06D	UA-6**	96.10	605.55	79.0 - 89.0

- * Denotes Upgradient Wells
- ** Denotes Point of Compliance Wells

Piezometers

P01D	B-1***	111.10	584.10	101.90 - 106.90
P02D	B-2	110.20	586.86	100.90 - 105.90
P03D	B-3	125.00	587.07	116.00 - 121.00
P04D	B-4	99.25	584.09	90.30 - 95.30
P05D	B-5	103.10	585.39	94.77 - 99.77
P06D	B-6	113.10	587.36	103.92 - 108.92
P07D	B-7	117.42	587.70	107.67 - 112.67
P08D	B-8	118.25	589.20	108.51 - 113.51
P09D	B-9	108.70	584.47	99.50 - 104.50
P10D	B-10	122.20	591.26	117.01 - 122.01
P11D	B-11	131.85	589.24	122.92 - 127.92
P12D	B-12	135.10	588.19	126.20 - 131.20
P13D	B-13	128.00	590.26	119.70 - 124.70
P14D	B-14	99.50	586.58	91.00 - 96.00

IEPA Well <u>No.</u>	Facility Well <u>No.</u>	Well Depth (ft)	Boring Depth Elevation (ft MSL)	Screen Depth Interval (ft)
P15D	B-15	136.93	584.61	127.50 - 132.50
P16D	B-16	124.15	595.48	115.90 - 120.90
P17D	B-17	127.05	599.97	122.90 - 127.90
P18D	B-18	124.65	584.49	114.90 - 119.90

- *** Denotes Upgradient Piezometer
- 2. Within thirty (30) days of the effective date of the Permit additional information concerning the construction of wells UA-1, UA-2, UA-3, UA-4, UA-5, UA-6, B-1, B-2, B-3, B-4, B-5, B-6, B-7, B-8, B-9, B-10, B-11, B-12, B-13, B-14, B-15, B-16, B-17, and B-18 must be submitted to the Illinois EPA for review. Information concerning the material used for (1) the filter pack and (2) the grout must be submitted in order to determine the adequacy of construction.
- 3. Construction of each new monitoring well/piezometer must be either in accordance with the diagram contained in Attachment A to this Permit or details and diagrams in the Approved Permit Application. Details include 77 IAC Part 920 regulations, such as 77 IAC.170, which stipulates that the filter pack of wells extend a maximum of six (6) inches below the bottom of the screen. All new monitor wells/piezometers to be installed must be continuously sampled and logged on Illinois EPA boring logs, unless otherwise approved by the Illinois EPA. A copy of an Illinois EPA boring log is shown as Attachment A to this permit.
- 4. The Permittee shall notify the Illinois EPA within thirty (30) days in writing if any of the wells identified in Condition III.C.1 are damaged or the structural integrity has been compromised. A proposal for the replacement of the subject well shall accompany this notification. The well shall not be plugged until the new well is on-line and monitoring data has been obtained and verified, unless the well is extremely damaged and would create a potential route for groundwater contamination. However, sampling of the damaged, existing well may cease during the period that groundwater samples from the replacement well are being verified. Prior to replacing the subject well, the Permittee shall obtain written approval from the Illinois EPA regarding the proposed installation procedures and construction.

- 5. Should any well become consistently dry or unserviceable, a replacement well shall be provided within ten (10) feet of the existing well. This well shall monitor the same zone as the existing well and be constructed in accordance with the current Illinois EPA groundwater monitoring well construction standards at the time the wells are replaced or in accordance with the Approved Permit Application. A replacement well which is more than ten (10) feet from the existing well or does not monitor the same geologic zone must be approved by the Illinois EPA as a Class II modification and designated as a new well.
- 6. The Permittee shall submit boring logs, construction diagrams and development of a new or replacement well to the Illinois EPA at the address below within thirty (30) days of the date that installation of the well is completed. In addition, the Permittee shall submit certification that plugging and abandonment of a well was carried out in accordance with the approved procedures to the Illinois EPA at the address below within thirty (30) days of the date that the well is plugged and abandoned. All information should be submitted to the appropriate Agencies.

Planning and Reporting Section
Bureau of Land
Illinois Environmental Protection Agency
1021 North Grand Avenue East
Post Office Box 19276
Springfield, Illinois 62794-9276

- 7. All wells/piezometers shall be equipped with protective caps and locks. Monitoring wells or piezometers located in high traffic areas shall be designed in such a manner as to provide adequate well integrity. This design may consist of a flush or below ground surface completion, or additional protection by the installation of three or more "bumper guards" for wells with aboveground surface completions. The "bumper guards" should be located within 3 or 4 feet of the well/piezometer and be highly visible.
- 8. All wells/piezometers not utilized in the approved groundwater monitoring system, but retained by the facility, must be maintained in accordance with 77 Illinois Administrative Code 920 regulations.
- 9. The Permittee shall submit map(s) in transferable digital format such as AUTOCAD.DXF, at a scale of 1" equal to 200 or 400 feet which include the surveyed well locations, regulated units, point of compliance and facility boundaries on disk within ninety (90) days of completion of any additional wells required by this permit. Revisions of the digital map shall be submitted to Illinois EPA within ninety (90) days following any significant facility changes, such as the installation of additional groundwater monitoring wells.

D. MONITORING PARAMETERS

1. The Permittee shall determine groundwater quality at each of the UA-Series groundwater monitoring wells identified in Condition III.C.1, at both the upgradient and point of compliance locations, semi-annually during the active life of the four land farm units (D81) (including closure and post-closure care period). Samples collected during the semi-annual sampling events of each year shall be analyzed for the constituents below:

FIELD PARAMETERS	STORET	<u>UNITS</u>
рН	00400	
Specific Conductance	00094	micromos/cm
Temperature of Water Sample	00011	(°F)
Turbidity	45626	Ntus
Depth to Water (below land surface)	72019	FEET
Depth to Water (below measuring point)	72109	FEET
Elevation of Groundwater Surface	71993	FT MSL
Elevation of Bottom of Well#	72020	FT MSL
Elevation of Measuring Point (Top of		
casing)##	72110	FT MSL

[#] Shall be determined during the second sampling event each year.

UA-Series Semi-Annually

INDICATOR PARAMETERS	<u>STORET</u>	<u>UNITS</u>
TOX	78115	mg/L
TOC	00680	mg/L
Arsenic (Dissolved)	01000	mg/L
Chromium (Dissolved)	01030	mg/L
Lead (Dissolved)	01049	mg/L

NOTE:

i. All parameters with the "(Dissolved)" label to the right shall be determined using groundwater samples which have been filtered through a 0.45 micron filter and used for statistical purposes along with TOX and TOC. Should a parameter be

^{##} Shall be surveyed once every five years or whenever the elevation changes as required by Condition III.F.2.

detected in groundwater and found to be statistically above background, the subsequent monitoring event must include total (unfiltered) analysis and a comparison to the appropriate 35 Ill. Adm. Code 620 groundwater quality standard must then take place.

- ii. The monitoring results should be reported in ug/L units unless otherwise indicated.
- 2. Within thirty (30) days of the effective date of the Permit, a re-evaluation of constituents proposed to be monitored by the UA-Series groundwater monitoring wells must be submitted to the Illinois EPA for review and approval. Constituents have been found in soils in the treatment zone, below the treatment zone, perimeter samples and the stream sediments samples. The re-evaluation must be in accordance with the 35 Ill. Adm. Code 703.185(f) and 35 Ill. Adm. Code 724.198(a). The list of indicator parameters, waste constituents, or reaction products must provide a reliable indication of the presence of hazardous constituents in the groundwater.

E. SAMPLING AND ANALYSIS PROCEDURES

The Permittee shall use the techniques and procedures described in Volume 1, Section E, Appendix E-2 of the Approved Permit Application except as modified below, when obtaining and analyzing samples from the groundwater monitoring wells described in Condition III.C.1 above:

- 1. Samples shall be collected by the techniques described in Section E, Volume 1, Appendix E-2 of the Approved Permit Application.
- 2. Samples shall be preserved, shipped and handled in accordance with the procedures specified in Section E, Volume 1, Appendix E-2 of the Approved Permit Application.
- 3. Samples shall be analyzed by the analytical methods and procedures proposed on page E-235 of Appendix E-2 of the Approved Permit Application according to SW-846 Methods unless otherwise approved by the Illinois EPA. Methods must generally be those with PQLs which are reasonable for compounds without standards and less than or equal to standards where the standards exist for any method submitted for Illinois EPA approval.
- 4. Samples shall be tracked and controlled using the chain of custody procedures specified in Section E, Volume 1, Appendix E-2 of the Approved Permit Application.

F. GROUNDWATER ELEVATIONS

- 1. The Permittee shall determine the groundwater surface elevation referenced to mean sea level (MSL) at each well each time groundwater is sampled in accordance with Condition III.I.3.
- 2. The Permittee shall determine the surveyed evaluation of the "stick-up" referenced to MSL when the well is installed (with as-built diagrams) and every five years, or whenever the elevation changes.
- 3. Elevation, as referenced to MSL, of the bottom of each monitoring well (STORET 72020), is to be reported at least annually. The mandatory measurement shall be taken during the second semi-annual sampling event each year.

G. STATISTICAL PROCEDURES

The Permittee shall use the statistical procedures described in Section E of the Approved Permit Application except as follows:

- 1. The background values calculated for groundwater monitoring well UA-1 must be based on historical data gathered over the entire interim status period using a trend analyses.
- 2. Within thirty (30) days of the effective date of the Permit calculations of background values for well UA-1 must be submitted for Illinois EPA review and approval.

H. MONITORING PROGRAM AND DATA EVALUATION

- 1. The Permittee shall collect, preserve and analyze samples pursuant to Condition III.E.
- 2. The Permittee shall determine groundwater quality at each monitoring well at the compliance point semi-annually during the life of the four land treatment units (D81) (including the closure and post-closure care periods). The Permittee shall express the groundwater quality at each monitoring well in a form necessary for the determination of statistically significant increases (i.e., means, variances, etc.).

- 3. The Permittee shall determine the groundwater flow rate and direction in the uppermost aquifer at least annually from the monitoring wells listed in Condition III.C.1.
- 4. The Permittee shall determine whether there is a statistically significant increase over background values for each parameter identified in Condition III.D.1 each time groundwater quality is determined at the compliance point. In determining whether such an increase has occurred, the Permittee must compare the groundwater quality at each monitoring well specified in Condition III.C.1 to the background values to be determined in accordance with the statistical procedures specified in Condition III.G.

I. REPORTING AND RECORDKEEPING

- 1. The Permittee shall enter all monitoring, testing and analytical data obtained in accordance with Condition III.H into the operating record.
- 2. Samples collected to meet the requirements of the groundwater monitoring program described in Conditions III.D. and III.E shall be collected semi-annually, as identified in the table below. The results of the analysis conducted on the groundwater quality samples along with the approved evaluation shall be submitted in accordance with this schedule.

Sampling Event of Calendar Year	Results Submitted to the Illinois EPA by the Following	ois EPA by	
	- v	III.D.1	
Second Quarter Fourth Quarter	July 15 January 15	III.D.1	
1 om m Zamioi	ounant 10	******	

- 3. Groundwater surface elevation data, measured pursuant to Condition III.F.1 shall be collected semi-annually and submitted to the Illinois EPA as identified in the table above.
- 4. The Permittee shall report the groundwater flow rate and direction in the uppermost aquifer, as required by Condition III.H.3 during the second semi-annual sampling event of each year.
- 5. The Permittee shall report the surveyed elevation, as required by Condition III.F.2, of the top of the well casing ("stick-up"), referenced to MSL, in accordance with the following schedule:

- a. For the wells identified in Condition III.C.1 above, every five years (during the second sampling event), or at the request of the Illinois EPA, or whenever the elevation changes.
- b. For any new wells, at the time of installation and reported in the as-built diagrams. Subsequent measurements shall be made very five years (during the second quarter sampling event) or whenever the elevation changes.
- 6. Elevation of the bottom of each monitoring well identified in Condition III.C.1, referenced to MSL, is to be reported annually. This measurement shall be taken during the second semi-annual sampling event. (STORET 72020)
- 7. Information required in Conditions III.I.2 and III.I.6 must be submitted on the chemical analysis forms (Attachment A) or in another format/media preapproved by the Illinois EPA.
- 8. The Permittee shall report all information to the Illinois EPA in a form which can be easily reviewed. All submittals must contain tables of data, drawings and tests (as necessary) to accurately describe the information contained in the submittal.
- 9. If the Permittee determines, pursuant to Condition III.G above, that there is a statistically significant increase for any of the parameters specified in Condition III.D.1 at any monitoring well at the compliance point, the Permittee shall submit the results of this statistical analysis and the results of the secondary statistical comparison within seven (7) days of the date that the increase is discovered. The Permittee shall:
 - a. Notify the Bureau of Land of this Illinois EPA in writing indicating what parameters and wells have shown statistical increases and provide all statistical calculations which have been completed. This notification shall be submitted to the Illinois EPA within seven (7) days of the date that the increase is discovered.
 - b. Sample the groundwater in all wells listed in Condition III.C.1 and determine if the concentration of all constituents identified in Appendix I of 35 IAC 724 such that the results will accompany the permit modification required by Condition III.I.9.d below.

For any Appendix I compounds found in the analysis pursuant to this condition, the Permittee may resample within one month and repeat the analysis for those compounds detected. If the results of the second analysis confirm the initial results, then these constituents will form the basis for compliance monitoring. If

the Permittee does not resample for the compounds pursuant to this condition, the hazardous constituents found during this initial Appendix I analysis will form the basis for compliance monitoring.

- c. Establish background values for each Appendix I constituent found in the groundwater during sampling and analyses required by Condition III.I.9.b above. These values shall be (1) based on a minimum of four sampling events from well UA-1, (2) submitted to the Illinois EPA with the application required by Condition III.I.9.d below and (3) expressed in a form necessary for the statistical procedures in Condition III.G above.
- d. Submit to the Bureau of Land of this Illinois EPA an application for a permit modification to establish a compliance monitoring program meeting the requirements of 35 IAC 724.199. The application shall be submitted to the Illinois EPA within ninety (90) days of the date that the increase is discovered. Furthermore, the application must include the following information:
 - (1) An identification of the concentration of any 35 IAC 724, Appendix I constituents found in the groundwater at each monitoring well at the compliance point;
 - (2) Any proposed changes to the groundwater monitoring system at the facility necessary to meet the requirements of Section 724.199;
 - (3) Any proposed changes to the monitoring frequency sampling and analysis procedures, or methods or statistical procedures used at the facility necessary to meet the requirements of Section 724.199; and
 - (4) For each hazardous constituent found at the compliance point, a proposed concentration limit under 35 IAC 724.194(a)(1) or 724.194(a)(2), or a notice of intent to seek an alternative concentration limit for a hazardous constituent under 35 IAC 724.194(b).
- e. Submit to the Bureau of Land of this Illinois EPA a corrective action feasibility plan to meet the requirements of 35 IAC 724.200 unless the concentration of all hazardous constituents identified under Condition III.I.9.b above are listed in 35 IAC 620.410 and their concentrations do not exceed the respective Groundwater Quality Standard or the Permittee has sought an alternative concentration limit under III.I.9.d.4 above for every hazardous constituent identified under Condition III.I.9.b above. This plan must be submitted to the Illinois EPA within 180 days of the date that the increase is discovered.

- f. Submit to the Bureau of Land of this Illinois EPA all data necessary to justify any alternative concentration limit for a hazardous constituent sought under Condition III.I.9.d.4 above. This data shall be submitted to the Illinois EPA within 180 days of the date that the increase is discovered.
- 10. If the Permittee determines, pursuant to Condition III.G above, that there is a statistically significant increase above the background values for the parameters specified in Condition III.D.1 above, the Permittee may demonstrate that a source other than a regulated unit caused the increase or that the increase resulted from error in sampling, analysis, or evaluation.

The demonstration shall be submitted to the Illinois EPA for approval and shall be responded to by the Illinois EPA in writing. If the Illinois EPA determines that the demonstration is unsuccessful, the response from the Illinois EPA shall state the reasons why the demonstration is unsuccessful. This denial may be appealed to the Illinois Pollution Control Board pursuant to 35 IAC Part 105. Submittal of such a demonstration does not relieve the Permittee of the requirements in Condition III.I.9.d above unless the Illinois EPA determines that the demonstration is successful. Appeal of the Illinois EPA's determination that a demonstration is unsuccessful shall not excuse noncompliance with the permit, or delay any permit modification proceeding.

To make this demonstration the Permittee shall:

- a. Notify the Bureau of Land of the Illinois EPA in writing that they intend to make this demonstration. This notification must be submitted to the Illinois EPA within seven (7) days of the date that the increase is discovered.
- b. Submit a report to the Bureau of Land of the Illinois EPA which demonstrates that a source other than a regulated unit caused the increase, or that the increase resulted from error in sampling, analysis, or evaluation. This report must be submitted within ninety (90) days of the date that the increase is discovered.
- c. Submit to the Bureau of Land of the Illinois EPA an application to make any appropriate changes to the detection monitoring program. This application must be submitted within ninety (90) days of the date that the increase is discovered.
- d. Continue to monitor in accordance with the detection monitoring program in place at the facility.

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J. REQUEST FOR PERMIT MODIFICATION

- 1. If the Permittee determines that the detection monitoring program no longer satisfies the requirements of 35 IAC 724, Subpart F, the Permittee must, within ninety (90) days, submit an application for a permit modification to the Bureau of Land of this Illinois EPA to make any appropriate changes to the program which will satisfy the regulations.
- 2. Conditions in this section of the permit may be modified in accordance with 35 IAC 705.128 if there is cause for such modification, as defined in 35 IAC 702.184. Causes for modification identified in this section include, but are not limited to, alterations to the permitted facility, additional information which would have justified the application of different permit conditions at the time of issuance, and new regulations.

K. COMPLIANCE SCHEDULE

All information submitted in response to Conditions III.C.2, III.D.2, and III.G.2 shall be submitted as permit modification requests. The submittals shall meet the requirements for permit modification requests found in 35 IAC 703 Subpart G: Changes to Permits. The Illinois EPA shall review each submittal and either issue comments or a modified permit in response to the submittal.

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SECTION IV CORRECTIVE ACTION ACTIVITIES

A. <u>INTRODUCTION</u>

In accordance with Section 3004 of RCRA and 35 IAC 724.201 CITGO shall institute such corrective action as necessary to protect human health and the environment from all releases of hazardous wastes or hazardous constituents, listed in Appendix H of 35 IAC Part 721, from any solid waste management unit (SWMU) at its Refinery in Lemont, Illinois. This shall be accomplished by:

- 1. Conducting a RCRA Facility Investigation (RFI) to determine whether releases of hazardous wastes and hazardous constituents have occurred from any solid waste management unit (SWMU) at its facility, and if so, the nature and extent of the release(s).
- 2. Based upon the results of the RFI, developing and implementing a Corrective Measures Program which describes the necessary corrective actions which will be taken. The required corrective actions shall be those actions necessary to protect human health and the environment from all releases of hazardous wastes or hazardous constituents, listed in Appendix H of 35 IAC Part 721, above site-specific cleanup objectives from any of the SWMUs.
- 3. Conducting an Inspection and Maintenance Program for the storm water sewer system, the process wastewater sewer system and the open flow ditches (a part of the stormwater management system) at the facility.
- 4. In the future, the Permittee may chose to operate a Corrective Action Management Unit as part of the overall corrective action efforts at this facility, provided the requirements of 35 Ill. Admin. Code 703 and 724, Subpart S are first met. In the case that a CAMU is determined to be a protective and appropriate option for the management of remediation wastes at the facility by way of permit modification, the Permittee shall (in coordination with the IEPA) modify or construct (as necessary) an appropriate location/unit in support of the corrective action program. At the time that the Permittee moves forward with design and operation of the CAMU by way of permit modification, this condition shall be modified to reflect the CAMU design, construction, operation, and management programs as approved by the IEPA. This permit modification will be subject to the appropriate documentation submittals, review and comment periods, and technical approval by the IEPA.

B. CONDUCTING THE RCRA FACILITY INVESTIGATION

The Permittee must conduct a RCRA Facility Investigation (RFI) to determine the nature and extent of releases of hazardous wastes and hazardous constituents from certain SWMUs at the subject facility. This RFI shall be carried out in two phases. Each phase will provide for a more detailed evaluation of each Solid Waste Management Unit identified. Phase I will define whether a release from the SWMU has occurred to the environmental media of concern. Phase II will define the nature and extent of any release from the SWMU to soil, groundwater, and surface water/sediments. A more detailed discussion of the goals of each phase of the RFI is presented in Section II of Attachment C. The Scope of Work for the RFI is provided as Attachment C to the Permit.

- 1. In general, the RFI must be carried out in accordance with the following requirements:
 - a. Based upon the results of the RCRA Facility Assessment which was conducted by the Illinois EPA for this facility, the SWMUs identified in the table below must be evaluated in the RFI for potential releases to certain environmental media of concern also identified in the table. The SWMUs have been grouped into two categories based on their estimated potential risk to human health and the environment. The Group 1 SWMUs have either had known releases in the past or pose the highest potential for releases that could impact the environment. Group 2 SWMUs are not known to have had a release and have a low potential for impact. (Please note that this is not a complete listing of SWMUs at the subject facility.):

<u>SWMU</u>	and the second s	nmental Media Concern	Initial <u>Phase</u>
Group 1			
2A-E	Former Process Wastewater Line ("Big Inch")	Soil	I
3 .	Former North Plant API Separator and Above Ground Corrugated Plate Separator	Soil	II
4	Hot Oil Line, Seneca Petroleum Storage Tank	Soil	II
7	Interceptor Trench; Canal Dock	Soil	I
11A-B	Recycle Tanks; 11A - Mobil Interface Tank 436; 11B - 301 Tank	Soil	I II
12	Tank 201 and Proximate Area	Soil	II
17	Intermittent Stream/Stormwater Conveyance System	Soil/Surface Water	I

19D	Former Sludge Drying Areas	Soil	II
21	Vertical Oil Storage Tanks at the Stormwater Basin (SWB)	Soil	Ι
24	Former API Separator	Soil	Π
30	Former Primary Light Oil (PLO) Underground Storage Tank (UST) at Fuels Loading Rack Area	Soil/Groundwater	Π
31A-E	Former Underground Storage Tanks located at Former Service Station and Active Solvent Loading Rack Area	Soil/Groundwater	II
32	Former Process Blending UST at the Process Blend Center	Soil/Groundwater	II
33	Groundwater Monitoring Zone around and beneath the storm water basins	Groundwater	Π
34	French Drain System	Soil	I
36	Former USTs Located at South Plant Administration Maintenance Area	Soil/Groundwater	I
37	Former USTs Located near WWTP Outfall to Chicago Sanitary & Ship Canal	Soil/Groundwater	I
Group 2			
1	Former Empty Drum Storage Area	Soil (Integrity Inspection)	I
5	Former Dump Area for Lime Sludge,	• ,	
	Seneca Tank Location	Soil	I
10	North Plant Heat Exchanger Bundle Cleaning Pad	Soil (Integrity Inspection)	Ι
13	Sludge Drying Area	Soil	I
15A-B	Wastewater Treatment Sludge Decant Basins within Land Treatment Facility	Soil/Surface Water	Ι
15C	Wastewater Treatment Sludge Decant Basins within Land Treatment Facility	Soil/Surface Water	Ι
16	Sludge Application Area	Soil	I
18	Waste Staging Area	Soil	I
19A-C	Former Sludge Drying Areas	Soil	I
20	Active Drum Staging Area	Soil (Integrity Inspection)	Ι
25A-B	Heat Exchanger Bundle Cleaning Pad	Soil (Integrity Inspection)	I
25C	Supplementary Heat Exchanger Bundle Cleaning Pad Cleaning Building	Soil (Integrity Inspection)	I
35	Red Dye Spill Area	Soil	I
	v 1		

43A-I Suspected Spill Locations Along the Product Soil Pipe Lines (Identified in Table 3 of the document entitled "RCRA Corrective Action and RFI Approach for CITGO SWMUs which was submitted under a December 23, 1996 letter from Joel Garretson of Unocal and Claude Harmon of CITGO.

Ι

The current monitoring and reporting requirements for the Groundwater Monitoring Zone around and beneath the stormwater basins (SWMU 33) shall continue in accordance with Illinois EPA's July 7, 1994 letter to Mr. L.D. Erehull of Uno-Ven Company until these actions are replaced with other actions during the corrective action efforts carried out under this permit.

- b. The RFI will be implemented by SWMU group to address the SWMUs of highest potential risk first and then the lesser priority SWMUs. Group 1 has the highest priority SWMUs and will be the initial focus of the RFI. The Group 2 RFI will begin after the Group 1 SWMUs have been investigated.
- c. The RFI for the Group 1 and 2 SWMUs will be conducted in two phases as defined in Attachment C of this permit. SWMUs that are known to have releases in the past are contained in Group 1 and will proceed directly to Phase II of the RFI to define nature and extent. The other SWMUs will be investigated initially in Phase I to determine the presence or absence of hazardous constituents. Phase II will be conducted to characterize any releases detected during the Phase I investigation. The starting phase for each SWMU is listed in 1.a. above.
- d. After completion of the Group 1 Phase I/II investigation, a perimeter approach should be considered to investigate and monitor groundwater on a more area-wide basis. This would include perimeter monitoring at: (1) the East Tank Farm located on the bluff along the eastern portion of the facility; and (2) the remainder of the facility, including the West Tank Farm. Based on the data from the Group 1 Phase I/II investigation, the Permittee shall perform an evaluation of the system of groundwater monitoring wells that exists on the downgradient edge of the facility to determine if it is adequate to detect a potential off-site release and to monitor groundwater downgradient of potential sources. This evaluation and the proposed plan should be presented in the Phase I/II Summary Report. The plan may include the installation of additional groundwater monitoring wells as necessary to meet this criteria.
- e. A groundwater investigation is required for SWMUs 30, 31A-E, 32, 36 and 37.

- f. More specific requirements regarding what must be contained in the RFI Workplans are contained in Attachment C to this permit. It must be noted that the Phase I investigations need only investigate for releases to the soil or surface water from the individual SWMUs identified in 1.a above (except as noted in 1.e above). In developing these workplans, the Permittee may make reference to previous reports/documents to the Illinois EPA which contain the requested information. Any such reference must identify: the name of the document, the author of the document, the date it was submitted to the Illinois EPA, the person within the Illinois EPA to whom it was submitted and the exact pages within the document on which the desired information is located. It is respectfully requested that the Permittee be prepared to provide copies of these documents to the Illinois EPA if they are not readily accessible. It must also be noted that SWMUs adjacent to each other may be grouped together by the Permittee and thus allowing RFI activities to focus on these groups rather than individual SWMUs.
- 2. The Permittee shall submit to the Illinois Environmental Protection Agency's Bureau of Land (Illinois EPA's BOL) Permit Section, within 90 days after the effective date of this permit, a written RCRA Facility Investigation (RFI) Phase I and II Workplan for the Group 1 SWMUs. The workplan will define the initial RFI activities for each of the Group 1 SWMUs, depending on the phase specified in Condition IV.B.1.a for that SWMU. In general, the Group 1 Phase I/II RFI Workplan will address both phases and must contain the following:
 - a. General information regarding the facility in Lemont, Illinois.
 - b. Information, as it is available, regarding each SWMU identified in Group 1 of Condition IV.B.1.a above which (1) characterizes the unit; (2) describes its history of operations; and (3) documents the unit's integrity.
 - c. Proposed procedures, including field activities, to determine the absence or presence of releases from each SWMU of hazardous waste or hazardous constituents to the soil, groundwater, and/or surface water to meet the requirements of the attached scope of work.
 - d. Proposed procedures for delineating the nature and extent of known releases at the SWMU in any environmental media impacted by the release.
 - e. Information, as it is available, regarding all geologic, hydrogeologic and groundwater quality investigations carried out at the facility.

More specific requirements regarding what must be contained in the Group 1 Phase I/II Workplan are contained in Attachment C to this permit.

- 3. The Illinois EPA's BOL will approve, approve with modifications, or disapprove the Group 1 Phase I/II Workplan in writing and provide comments regarding the necessary corrections or modifications.
 - a. Within 60 days of receipt of such comments, CITGO must modify the plan or submit a new plan for the Illinois EPA's BOL approval.
 - b. Within 60 days of the Illinois EPA's BOL approval of the Group 1 Phase I/II RFI Workplan, CITGO shall begin implementing the Workplan according to the terms and schedule in the Workplan.
 - c. Illinois EPA action on the Group 1 Phase I/II Workplan will be subject to the appeal provisions of Sections 39(a) and 40(a) of the Illinois Environmental Protection Act.
- 4. CITGO must submit a report documenting the efforts carried out as set forth in the approved Group 1 RFI Phase I/II Work Plan in accordance with the schedule established in the approved Workplan. This report must:
 - a. Be organized so as to present a comprehensive and coherent description of the sources, nature and extent of contamination discovered at each SWMU during the Group 1 RFI Phase I/II Workplan.
 - b. Be prepared in accordance with: (1) the Data Management Plan which is to be a part of the Group 1 RFI Phase I/II Workplan; and (2) any conditions imposed by the Illinois EPA as part of its approval of the Group 1 Phase I/II Workplan.
 - c. Contain an evaluation of the data collected during the Phase I/II investigation and a recommendation regarding: (1) the need for a Phase II or other investigations; and/or (2) interim and corrective measures at each SWMU. Release criteria, as described below, shall form the basis for these evaluations/recommendations
 - 1. The Release Criteria must be fairly conservative numbers, below which, the Illinois EPA and CITGO are fairly certain there will be no impact to human health or the environment. Residential Tier 1 levels under the Tiered Approach to Corrective Action Objectives, IAC Part 742, (TACO) should be proposed as the initial corrective action objectives (Release Criteria). If industrial/commercial Tier 1 values are used, then it will be necessary to place restrictions on the deed requiring that the facility be used only for industrial/commercial activities in the future. The goal in using these values is to eliminate from further consideration: (1) those constituents not detected or only detected at low concentrations below objectives typically

- established by the Illinois EPA and (2) those SWMUs from which there has been no release or from which there has been a minor release which still meets the objectives typically established by the Illinois EPA.
- 2. Detection of constituents above the Release Criteria does not necessarily mean that corrective action must occur. Rather, it only means that a Phase II or other investigations must be conducted to better determine the extent and amount of contamination present at a given SWMU.
- 3. The Release Criteria may not be the final corrective active objectives which will be used in determining the final need for and extent of remediation.
- 4. The final corrective active objectives established for each SWMU will typically be a higher value than the Release Criteria.
- d. Contain a general discussion of the procedures which will be used in carrying out Phase II or supplemental investigations, as necessary.
- e. Contain an evaluation and description of the perimeter approach for monitoring groundwater on an area-wide basis. This should consider the results of the Group 1 Phase I/II RFI and other groundwater investigations at the refinery. The criteria for this evaluation are specified in Condition IV.B.1.e above.
- 5. Following the submittal of the Group 1 RFI Phase I/II report, the Illinois EPA's BOL will review the submitted data. The Illinois EPA's BOL will offer CITGO the opportunity to meet with Illinois EPA staff to discuss the results of the review prior to finalization of the review comments. The Illinois EPA's BOL will then notify CITGO in writing of the results of the review. This notification will discuss the status of each of the SWMUs evaluated as part of the Group 1 Phase I/II RFI.
 - a. If the Illinois EPA's BOL determines, based upon the data provided within and obtained from the Group 1 Phase I/II Workplan for each SWMU investigated, that (1) there is no potential for release from that SWMU to the environmental media of concern and (2) there has been no release of hazardous wastes or hazardous constituents to the environmental media of concern from that SWMU, then no further action will be required for that SWMU.
 - b. If the Illinois EPA's BOL determines, based on data from the Group 1 Phase I/II RFI for each SWMU investigated, that (1) there has been a release to any environmental media of concern, or (2) there currently is a release to any

environmental media of concern, then the nature and extent of the release must be defined. If the Group 1 Phase I/II RFI did not adequately define nature and extent to the satisfaction of the Illinois EPA, then a Phase II (or supplemental Phase II) investigation will be required as discussed in 5.c below.

- c. If the results of the Group 1 Phase I/II RFI are inconclusive or incomplete, a Phase II (or Supplemental Phase II) investigation must be conducted by CITGO. This investigation shall be conducted to collect additional information so that a conclusive determination can be made regarding a current/past release from a SWMU. This investigation shall be carried out in accordance with the RFI guidance provided above.
- d. The final letter sent to the facility conveying the results of the review will:
 - 1. Identify those SWMUs for which no further investigation is needed;
 - 2. Identify those SWMUs for which no further action is required;
 - 3. Identify those SWMUs that must be further investigated as part of a Phase II or a Supplemental Investigation to determine the rate and extent of migration of hazardous waste or hazardous constituents and the concentrations of the hazardous waste or hazardous constituents in the environmental media potentially impacted by a release from the SWMU.
 - 4. Identify, for each SWMU requiring further investigation, the associated environmental media which must be further investigated;
 - 5. Identify those SWMUs and associated environmental media for which corrective measures are required.
- e. Illinois EPA action on the final Group 1 Phase I/II RFI report and proposed Release Criteria will be subject to the appeal provisions of Sections 39(a) and 40(a) of the Illinois Environmental Protection Act.
- 6. If CITGO is notified in writing in accordance with Condition B.5 that any SWMUs identified during the Group 1 Phase I/II or Supplemental Phase II RFI as needing further investigation, then CITGO must develop and submit a Group 1 Phase II RFI Workplan. Phase II of the RFI shall focus on determining the rate and extent of migration of hazardous waste or hazardous constituents and the concentrations of the hazardous waste or hazardous constituents in any affected media (soil, groundwater, or surface water). Such a workplan must be submitted no more than 90 days after the facility is notified in writing in accordance with Condition B.5 above. The Scope of

Work for Phase II or Supplemental Phase II of the RFI is contained in Attachment C to the Permit.

- 7. The Illinois EPA's BOL will approve, approve with modifications, or disapprove the Group 1 RFI Phase II or Supplemental Phase II workplan in writing and provide comments regarding the required corrections or modifications.
 - a. Within 60 days of the receipt of such comments, CITGO must modify the plan or submit a new plan for the Illinois EPA's BOL approval.
 - b. Within 60 days of the Illinois EPA's BOL approval of the workplan, CITGO shall begin implementing the plan according to the terms and schedule established in the workplan.
 - c. Illinois EPA action on the workplan will be subject to the appeal provisions of Sections 39(a) and 40(a) of the Illinois Environmental Protection Act.
- 8. CITGO must submit a report documenting the efforts carried out in accordance with the approved Group 1 RFI Phase II or Supplemental Phase II Workplan and the schedule established within the workplan. This report must be prepared in a manner which is similar to that specified in Condition B.4 above.
- 9. Following submittal of the Group 1 RFI Phase II or Supplemental Phase II report, the Illinois EPA's BOL will review the data and notify CITGO in writing of the results.
 - a. If the Illinois EPA determines that the nature and extent of hazardous waste or hazardous constituents from a SWMU release, above the Release Criteria, has not been adequately defined during the Group 1 Phase II investigation, then CITGO must conduct supplemental investigations.
 - b. If the Illinois EPA's BOL determines that no further investigation is not required, based on data obtained from the Group 1 RFIs, the Illinois EPA reserves the right to require that corrective measures be conducted for the SWMUs of concern to address releases identified through the Phase I, Phase II, and supplemental investigations.
 - c. If the Illinois EPA determines that (1) there has not been a release of hazardous waste or hazardous constituents from a SWMU to the groundwater (2) but there is a potential for future releases of hazardous waste or hazardous constituents from a SWMU to the groundwater, then the Illinois EPA may require a longer term groundwater monitoring program at any SWMU where substantial soil contamination exists (as determined by the Illinois EPA), or at any SWMU which

would meet the definition of a land disposal unit. This additional monitoring need for this is dependent on the corrective action taken in response to the waste and/or contaminated soil present at the SWMU.

- d. The Illinois EPA's response to the Group 1 Phase II or Supplemental Phase II report will:
 - i. Identify those SWMUs investigated as part of the Phase II RFI for which no further action is required.
 - ii. Identify those SWMUs investigated as part of the Phase II RFI for which no further investigation is needed.
 - iii. Identify those SWMUs investigated as part of the Phase II RFI for which supplemental investigations must be conducted.
 - iv. Identify, for each SWMU requiring further investigation, the associated environmental media which must be investigated further and the information to be obtained during the investigation.
 - v. Identify those SWMUs and associated environmental media for which corrective measures are required.
 - vi. Identify those SWMUs for which longer-term monitoring is required.
- f. Illinois EPA action on the final Group 1 RFI Phase II or Supplemental Phase II report will be subject to the appeal provisions of Sections 39(a) and 40(a) of the Illinois Environmental Protection Act.
- 10. The Permittee shall submit to the Illinois EPA's BOL, within 90 days after the final Phase II report for the Group 1 SWMUs is submitted or after written notification from the Illinois EPA is received, a Phase I RFI Workplan for the Group 2 SWMUs. The Group 2 RFI including Phase I, II and supplemental investigations must be conducted in a manner consistent with procedures specified in Conditions B.2 through B.9 above. This covers Workplans, reports, and Illinois EPA comments and responses.

Illinois EPA action on the Group 2 RFI activities are subject to the appeal provisions of Sections 39(a) and 40(a) of the Illinois Environmental Protection Act.

C. CORRECTIVE MEASURES REQUIREMENTS

If, in accordance with Conditions B.5, B.9 and/or B.10, it is determined that corrective measures must be taken in response to releases from any SWMU that have not been addressed by approved interim measures, then CITGO shall implement a Corrective Measures Program (CMP). The CMP is divided into five phases:

- 1. Phase I should consist of (1) development of final cleanup objectives, (2) discussion of those SWMUs requiring corrective measures and (3) a preliminary evaluation of the corrective action alternatives available for each SWMU requiring corrective action.
- 2. Phase II should consist of (1) detailed evaluation of the corrective measure alternatives for each SWMU and (2) development of a conceptual design of the corrective action chosen for each SWMU including remedial system(s) and/or institutional controls.
- 3. Phase III should consist of development and submission of the final design plans for the corrective action and should include the preparation of the operation and maintenance plans.
- 4. Phase IV is the actual construction/installation of the selected corrective measure.
- 5. Phase V CMP is operation, maintenance, and monitoring of the selected corrective action to ensure it is properly protecting human health and the environment.

Attachment D describes the requirements for each Phase of the CMP. The Illinois EPA's decision to approve or disapprove of any element of the CMP described in Attachment D shall be subject to the appeal provisions of Sections 39(a) and 40(a) of the Illinois Environmental Protection Act.

The Phase I CMP report must be submitted within 120 days after receipt of the notification from the Illinois EPA that corrective measures are necessary to protect human health and the environment from observed releases from SWMUs at the facility. The purpose of the CMP is to describe the procedures which will be followed in providing corrective action at each SWMU requiring corrective measures. The proposed corrective measures must be sufficient to protect human health and the environment from the observed release. Subsequent submittals associated with the corrective measures process must be submitted to the Illinois EPA in accordance with the schedule in the Phase I CMP Report.

D. SEWER INSPECTION AND MAINTENANCE PLAN

- 1. Within 150 days of the effective date of this permit, the Permittee shall submit to Illinois EPA for review and approval an inspection and Maintenance Plan for the following SWMUs: (1) Process Sewer System (SWMU No. 38); (2) Storm Sewer System (SWMU No. 39; and (3) Open Flow Ditches (SWMU No. 40). This plan must contain the following information:
 - a. An overview of each of the SWMUs, including: (1) a discussion of the operation and maintenance history of each unit (of special concern here is any major clean out efforts conducted on any of these units); and (2) the types of waste handled by each unit (both historically and currently);
 - b. Scaled drawings showing the location and layout of each SWMU within the facility;
 - c. Process flow diagrams identifying the source and location where various waters are discharged into each system;
 - d. A discussion of the procedures which have been and will be used in the future to ensure that no process wastewater is discharged to the storm sewer system or the open ditches;
 - e. The results of a file and literature review to determine:
 - (1) The materials from which each SWMU was constructed;
 - (2) The source and the characteristics of the various wastewaters discharged to the process sewer;
 - (3) Known releases from each SWMU;
 - (4) An assessment of the compatibility of the material from which the process sewer is constructed with the wastewater flowing through it;
 - f. The results of a file and literature search to determine what portions of the storm sewer system and open flow ditches may have, in the past, received process wastewaters and/or other solid wastes.

- g. Procedures which will be followed to fill in any gaps in the information compiled to address Items a through e above;
- h. A schedule for conducting an integrity inspection of the process sewer system;
- i. A description of the procedures which will be followed in conducting the integrity inspections of the process sewer system. The following should be addressed in this discussion:
 - (1) Techniques used to evaluate the integrity of the system, including cleaning and inspection procedures;
 - (2) Evaluation criteria for the inspection;
 - (3) Requirements for documenting the results of the inspections and other management tasks;
- j. The protocols and methods for maintaining the process sewer system including: (1) engineering evaluation for repairs, rehabilitation and replacement technology;
 - (2) testing procedures; and (3) documentation requirements:
- k. The approach for assessing, inspecting and maintaining the storm sewer system and the open flow ditches, including procedures and documentation requirements;
- 1. Guidelines for response and corrective actions for any releases detected from these SWMUs. This should address; (1) notification procedures, (2) response and corrective action for immediate and investigative releases; and (3) cleanup objectives. The procedures for determining the nature and extent of any detected release and need for remediation should be carried out in accordance with those established in the RFI required by Condition IV.B above and the CMP required by Condition IV.c above.
- m. A detailed schedule of the general inspection and maintenance activities which will be carried out on a regular basis for these SWMUs. Of special concern here is the detection of on-going releases of waste either: (1) out of the process sewer system; or (2) into the storm water sewer or open ditches.
- n. A description of the information which will be compiled in the annual report required by Condition D.3 below.

- 2. The Illinois EPA's BOL will approve, approve with modifications or disapprove the Inspection and Maintenance Program in writing and provide comments regarding the necessary corrections or modifications.
 - a. Within 60 days of receipt of such comments, CITGO must modify the plan or submit a new plan for the Illinois EPA's approval;
 - b. Within 60 days of the Illinois EPA's approval of the plan, CITGO shall begin implementing the plan according to the terms and schedule of the approved plan;
 - c. Illinois EPA action on this plan will be subject to the appeal provisions of Sections 39(a) and 40(a) of the Illinois Environmental Protection Act.
- 3. A report summarizing the results of the approved inspection and maintenance plan must be developed for each calendar year. The report shall be developed in accordance with the procedures set forth in the approved plan and be submitted to Illinois EPA by March of each following year.

E. FINANCIAL ASSURANCE FOR CORRECTIVE ACTION

1. CITGO shall prepare a cost estimate for the completion of any corrective measure(s) required under this Permit, in order to provide financial assurance for completion of corrective action, as required under 35 IAC 724.201(b). Such a cost estimate will be based upon the cost of contamination investigations and assessments for the SWMU(s), and design, construction, operation, inspection, monitoring, and maintenance of the corrective measure(s) to meet the requirements of this Permit. This cost estimate must be submitted to the Illinois EPA's BOL and revised according to the following schedule:

<u>Facility Submission</u> <u>Due Date</u>

Initial Cost Estimate 120 days after the effective date of this Permit

Revised Cost Estimate (with Upon written Illinois EPA the initial submittal of each request RFI Report and/or CMP report)

2. CITGO shall demonstrate continuous compliance with 35 IAC 724.201 by providing documentation of financial assurance using a mechanism specified in 35 IAC 724.243,

in at least the amount of the cost estimate required under Condition D.1 the words "completion of corrective action" shall be substituted for "closure and/or post-closure," as appropriate in the financial instrument specified in 35 IAC 724.251. The documentation shall be submitted to the Illinois EPA's BOL within 60 days after the submittal of the initial or revised cost estimates required under Condition D.1. The Illinois EPA's BOL may accept financial assurance for completion of corrective action in combination with another financial mechanism acceptable under 35 IAC 724.246 at its discretion.

F. FUTURE RELEASES FROM SWMUS

Whenever the Permittee(s) becomes aware that any SWMU identified in Condition B.1, that was not found to be releasing hazardous waste or constituents during the RFI, or was not addressed under the corrective action requirements of this permit, may have started to release hazardous waste or constituents, the Permittee(s) shall report this information to the Illinois EPA's BOL in writing within thirty (30) days of discovery. Upon the Illinois EPA's written request, the Permittee(s) shall determine the nature and extent of the contamination by following the procedures set forth in Conditions IV.B through IV.D, beginning on the date of notification, rather than on the effective date of the permit.

G. NOTIFICATION REQUIREMENTS FOR AN ASSESSMENT OF NEWLY-IDENTIFIED SOLID WASTE MANAGEMENT UNIT(S)

- 1. The Permittee(s) shall notify the Illinois EPA's BOL in writing of any newly-identified SWMU(s) discovered during the course of groundwater monitoring, field investigations, environmental audits, or other means, no later than sixty (60) calendar days after discovery. For the purposes of this permit, "newly-identified SWMUs" shall mean all SWMUs located at the subject facility for which corrective actions have not previously been required by this permit, or which have not been previously listed in the RFA for this facility. The notification shall provide the following information, if available:
 - a. The location of the newly-identified SWMU in relation to other SWMUs on a scaled map or drawing;
 - b. The type and past and present function of the SWMU;

- c. The general dimensions, capacities, and structural description of the unit (available drawings and specifications);
- d. The period during which the unit was operated;
- e. The specifics on all materials, including but not limited to, wastes and hazardous constituents, that have been or are being managed at the SWMU, to the extent available; and
- f. The results of any relevant available sampling and analysis which may aid in determining whether releases of hazardous wastes or hazardous constituents have occurred or are occurring from the unit.
- 2. If the submitted information demonstrates a potential for a release of hazardous waste or constituents from the newly identified SWMU, the Illinois EPA may request in writing, that the Permittee(s) prepare a Solid Waste Management Unit (SWMU) Assessment Plan and a proposed schedule of implementation and completion of the Plan for any additional SWMU(s) discovered subsequent to the issuance of this Permit.
- 3. Within 120 calendar days after receipt of an Illinois EPA request for a SWMU Assessment Plan, the Permittee(s) shall prepare a SWMU Assessment Plan consistent with the requirements of IV.B through IV.E above. This SWMU Assessment Plan must also propose investigations, including field investigations if necessary, to determine the release potential to specific environmental media for the newly-identified SWMU. The SWMU Assessment Plan must demonstrate that the sampling and analysis program, if applicable, is capable of yielding representative samples and must include parameters sufficient to identify migration of hazardous waste and hazardous constituents from the newly-discovered SWMU(s) to the environment.
- 4. After the Permittee(s) submits the SWMU Assessment Plan, the Illinois EPA shall either approve, approve with conditions or disapprove the Plan in writing. If the plan is approved, the Permittee(s) shall begin to implement the Plan within sixty (60) calendar days of receiving such written notification. If the Plan is disapproved, the Illinois EPA shall notify the Permittee(s) in writing of the Plan's deficiencies and specify a due date for submittal of a revised plan.
- 5. The Permittee(s) shall submit a report documenting the results of the approved SWMU Assessment Plan to the Illinois EPA in accordance with the schedule in the approved SWMU Assessment Plan. The SWMU Assessment Report shall describe all results obtained from the implementation of the approved SWMU Assessment Plan. The

Illinois EPA's response will be similar to that described in Conditions IV.B through IV.E above.

H. COMPLETION OF CORRECTIVE MEASURES

- 1. CITGO shall complete those corrective measures contained in the Corrective Measures Program approved in accordance with Condition C above and/or interim measures approved in accordance with Condition I below. CITGO may request the Illinois EPA's BOL to consider corrective action complete at any point. The petition for such a request should include a demonstration of the following:
 - a. That there have been no releases of hazardous waste or hazardous constituents to any media from the SWMUs; or
 - b. That all releases are below the Release Criteria (initial corrective action objectives); or
 - c. That all releases of hazardous waste or hazardous constituents to all media targeted within the RFI for investigation have been remediated to the target cleanup objectives specified within the approved Phase I CMP Report or an interim measures plan, and shall also describe how releases will be prevented in the future; or
 - d. That, through the use of an Illinois EPA approved risk assessment, the corrective action is successful in protecting human health and the environment; or
 - e. Some combination of the above demonstrations.

Appropriate documentation and certification must accompany such a demonstration. The actual documentation to be submitted will be described in the Phase II CMP Report.

CITGO shall be notified in writing if the Illinois EPA's BOL approves the request that the corrective actions can be considered complete. The notification from the Illinois EPA's BOL to CITGO may include a release from the financial requirements of Condition E above. This action shall be subject to the appeal provisions set forth in Section 39(a) and 40(a) of the Environmental Protection Act.

- 2. A determination of no further action shall not preclude the Illinois EPA's BOL from requiring continued or periodic inspections of the SWMU(s) or continued or periodic monitoring of the specified environmental media when site-specific circumstances indicate that releases of hazardous wastes including hazardous constituents are likely to occur, if necessary to protect human health and the environment. Any requirement for long-term groundwater monitoring will only be required at a SWMU where substantial soil contamination exists (as determined by the Illinois EPA) or at any SWMU which would meet the definition of a land disposal unit. Any such requirement will be subject to the appeal provisions of Section 39(a) and 40(a) of the Illinois Environmental Protection Act.
- 3. A determination of no further action shall not preclude the Illinois EPA's BOL from requiring further investigations, studies, or remediation at a later date, if new information or subsequent analysis indicates a release or likelihood of a release from a SWMU at the facility that is likely to pose a threat to human health or the environment. In such a case, the Illinois EPA's BOL shall initiate a Permit modification to rescind the determination no further action.

I. INTERIM MEASURES

At any time during the RFI the Permittee may initiate interim measures and/or voluntary corrective actions for the purpose of preventing continuing releases and/or mitigating the results of releases and/or mitigating the migration of hazardous wastes or hazardous constituents. It may not be necessary to conduct all phases of the RFI investigation if the Illinois EPA's BOL and the Permittee(s) agree that a problem can be corrected, or a release cleaned up, without additional study and/or without a formal corrective measures program ("CMP").

- 1. Prior to implementing any interim measures, the Permittee must submit detailed information regarding the proposed interim measures to the Illinois EPA's BOL for approval. This information shall include, at a minimum:
 - a. Objectives of the interim measures: how the measure is mitigating a potential threat to human health and the environment and/or is consistent with and integrated into any long-term solution at the facility;
 - b. Design, construction, and maintenance requirements;
 - c. Schedules for design and construction; and

- d. Schedules for progress reports.
- 2. If the Illinois EPA's BOL determines that a release cannot be addressed without additional study and/or a formal CMP, then the Illinois EPA's BOL will notify the Permittee that these must be performed. Any proposal made under this provision or any other activity resulting from such proposal, including the invocation of dispute resolution, shall not affect the schedule for implementation of the RFI or of any other portion of the permit.
- 3. If the Illinois EPA determines that interim measures are necessary to protect human health or the environment, the Permittee will be notified by way of a permit modification.

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SECTION V REPORTING AND NOTIFICATION REQUIREMENTS

The reporting and notification requirements of each section of the RCRA post-closure permit are summarized below. This summary is provided to <u>highlight</u> the various reporting and notification requirements of this permit.

<u>Condition</u>	Submittal	<u>Due Date</u>
SECTION I: CL	OSURE	
D.8	Certify that closure was performed in accordance with the specifications.	Within 60 days after completion of the cover system.
SECTION II: PO	OST-CLOSURE CARE	
D.4	Results of soil core sampling.	By January 15 of each year with the groundwater monitoring report required by Condition III.I.2.
D.6	Permit Modification.	Within 90 days of determining a statistically significant increase of hazardous constituents below the treatment zone.
F.2	Record of the type, location, and quantity of hazardous waste placed within each land treatment area.	Within 60 days after certification of closure.
F.3.a	Record notation on the deed to the facility property regarding hazardous waste management at the site.	Within 60 days after certification of closure.
F.3.b	Certify that the notation required in F.3.a has been recorded.	Within 60 days after certification of closure.

<u>Condition</u>	<u>Submittal</u>	<u>Due Date</u>
F.4	Request permit modification to remove the cover or hazardous wastes.	Prior to removing the cover or wastes.
F.5	Certify that post-closure care was performed in accordance with the specifications.	Within 60 days after completion of the post-closure care period.
SECTION III: G	ROUNDWATER DETECTION MONITO	RING PROGRAM
C.4	Notify the Illinois EPA in writing if any Monitoring wells identified in Condition III.C.1 are damaged or the structural integrity has been compromised.	Within 30 days of determining the well is damaged or is structurally compromised.
C.4	Submit a proposal for the replacement of damaged or structurally compromised monitoring wells.	Within 30 days of determining the well is damaged or is structurally compromised.
C.6	Submit the appropriate completed data sheets from the installation and development of each new or replacement well, or the plugging and abandonment of existing wells.	Within 30 days of the date of installation or plugging and abandonment.
C.9	Submit a facility map in a transferrable digital format.	Within 90 days of the completion of any additional wells required by this permit and within 90 days following significant facility changes.
H.2	Submit analytical results and measurements And statistical results.	See Condition I.2 for specific reporting dates.
I.4	Report groundwater flow rate and direction.	January 15 of every year

Condition	Submittal	<u>Due Date</u>
I.6	Report elevation of well bottom.	January 15 of every year.
I.9(a)	Notification of a statistically significant increase	Within 7 days of discovery of increase.
I.9(d)	Apply for permit modification establishing compliance monitoring program	Within 90 days of discovery of increase.
I.9(e)	Submit an application for a permit modification to establish a corrective action feasibility plan.	Within 180 days of date increase is discovered.
I.10(b)	Submit a demonstration that a source other than a regulated unit caused the contamination or that the detection is a laboratory artifact.	Within 90 days after discovery of increase.
J.1	Submit an application for permit modification.	Within 90 days after determination that the detection monitoring program no longer satisfies 35 IAC Part 724, Subpart F requirements.

SECTION IV: CORRECTIVE ACTION

B.2	Group 1 Phase I/II RFI Workplan	Within 90 days of the effective date of this permit.
B.4	Group 1 Phase I/II RFI Report	To be specified in the Group 1 Phase I/II workplan, subject to Illinois EPA approval.

Condition	Submittal	<u>Due Date</u>
B.6	Group 1 Phase II Workplan	Within 90 days of notification that Phase II is required for Group 1.
B.8	Group 1 Phase II RFI Report	To be specified in the Group 1 Phase II Workplan, subject to Illinois EPA approval.
B.6	Group 1 Supplemental Investigation Workplan	Within 90 days of notification that a Group 1 supplemental investigation is required.
B.11	Group 1 Supplemental Investigation Report	To be specified in the Group 1 supplemental investigation Workplan, subject to Illinois EPA approval.
B.10	Group 2 Phase I Workplan	Within 90 days of submittal of the final Group 1 Phase II Report or within 90 days of written request from the Illinois EPA.
B.10	Group 2 Phase I RFI Report	To be specified in the Group 2 Phase I Workplan, subject to Illinois EPA approval.
B.10	Group 2 Phase II Workplan	Within 90 days of notification that Phase II is required for Group 2.
B.10	Group 2 Phase II RFI Report	To be specified in the Group 2 Phase II Workplan, subject to Illinois EPA approval.

written request.

Condition	Submittal	<u>Due Date</u>
B.10	Group 2 Supplemental Investigation Workplan	Within 90 days of notification that a Group 2 supplemental investigation is required.
B.10	Group 2 Supplemental Investigation Report	To be specified in the Group2 Supplemental Investigation Workplan, subject to Illinois EPA approval
D.1 ·	Group 3 Inspection and Maintenance Plan	Within 150 days of the effective date of this permit
C	Phase I CMP Report	Within 120 days of receiving notification that corrective measures are necessary.
E.1	Initial Cost Estimate	Within 120 days of the effective date of this permit.
E.1	Revised Cost estimate for subsequent investigations and eventually for Corrective Measures with the initial submittal of each RFI Workplan and/or CMP Report.	Upon written Illinois EPA request.
SECTION VI: ST	TANDARD CONDITIONS	
6	Complete application for new permit	180 days prior to permit expiration.
11	Information requested by Illinois EPA and copies of records required to be kept by this permit	Submittal date to be determined by Illinois EPA, but no later than 30 days after

Condition	Submittal	<u>Due Date</u>
14	Written notification of planned physical alterations or additions	As soon as possible prior to planned change.
15	Construction Certification	Following construction or modification of the facility.
16	Written notification of changes which may result in noncompliance with the permit	Prior to anticipated noncompliance.
17	Application for permit modification indicating permit is to be transferred	At least 90 days prior . to transfer date.
19	Submission of any information required in a compliance schedule	14 days after each schedule date.
20	Report to Illinois EPA any non-compliance which may endanger health or environment by telephone	24 hours after discovery.
•	in writing	5 days after discovery.
21	Report all other instances of noncompliance	March 1 of each year along with Annual Report.
28	Waste minimization certification	At least annually.
29	Notify the Illinois EPA in writing of expected receipt of hazardous waste from a foreign source	4 weeks prior to receipt of waste.
41	Update arrangements with local authorities	At least annually.
42	Implementation of Contingency Plan	As needed.
,	Notify appropriate state and local agencies with designated response roles	As needed.

<u>Condition</u>	Submittal	Due Date
	Notify appropriate local officials	Immediately, if emergency coordinator's assessment indicates evacuation of local area is advisable.
	Notify the Illinois EPA (217/782-3637) or Illinois EMA (217/782-7860) if the emergency coordinator determines there has been a release, fire or explosion which could threaten human health or the environment, outside the facility.	Immediately after determination is made.
	Notify Illinois EPA and appropriate state and local authorities, in writing that facility is in compliance with 35 Ill. Adm. Code 724.156(h).	Prior to resuming operation in affected areas.
	Written Report to Illinois EPA with details regarding the incident which required implementation of contingency plan.	15 days after event.
48	Submit annual report required by 35 Ill. Adm. Code 724.175	March 1 of each year.
50	Submit Application for permit modification amending closure plan.	Within 90 days of discovery of need for modification.
51	Written notification of closure.	45 days prior to beginning closure.
55(a)	Adjust closure cost estimate for inflation.	Within 60 days prior to anniversary date of the establishment of the financial instrument, or within 30 days after close of the firm's fiscal year.

Phase II Workplan.

<u>Condition</u>	Submittal	<u>Due Date</u>
55(b)	Revision of closure cost estimate.	No later than 30 days after approval of a modified closure plan.
56	Change in financial assurance mechanism for closure.	As needed.
57	Change in coverage for sudden and non-sudden accidental occurrences.	As needed.
58	Written notification to the Illinois EPA of commencement of voluntary or involuntary bankruptcy proceedings.	10 days after commencement of proceeding.
ATTACHMENT	C: SCOPE OF WORK FOR RFI	
V	RFI Implementation Schedule	
	Submission of Group 1 RFI Phase I/II Workplan.	Within 90 days after effective date of the permit.
	Completion of Group 1 RFI Phase I/II investigation and submission of Phase I Report and Summary	Within time frames established in the Group 1 RFI Phase I/II Workplan, subject to Illinois EPA approval.
	Submission of Group 1 RFI Phase II Workplan.	Within 90 days after notification of the need for Group 1 Phase II by Illinois EPA's BOL.
	Completion of Group 1 RFI Phase II investigation and submission of Group 1 Phase II Report and Summary.	To be negotiated with the Illinois EPA's BOL during review of Group 1

Condition	Submittal		<u>Due Date</u>
	Quarterly Progress Repor	ts <u>For months of</u>	Report to the Illinois EPA by the following
		January-March April-June July-September October-Decemb	May 1 August 1 November 1 per February 1
	Submission of Group 1 S Investigation Workplan.	upplemental	Within 90 days after notification of the need of supplemental investigation by Illinois EPA's BOL.
	Completion of supplement for Group 1 and Submiss Of Report and Summary.	_	To be negotiated with the Illinois EPA's BOL during Review of Supplemental Investigation Workplan.
	Submission of Group 2 P Workplan.	hase I RFI	Within 90 days of submittal of final Group 1 Phase II RFI Report or within 90 days of request by Illinois EPA.
	Completion of Group 2 R investigation and submiss Group 2 Phase I Report a	sion of	To be negotiated with the Illinois EPA's BOL during review of Group 2 Phase I Workplan.
	Submission of Group 2 R Workplan.	FI Phase II	Within 90 days after notification of the need for Group 2 Phase II by Illinois EPA's BOL.
	Completion of Group 2 R investigation and submiss Group 2 Phase II Report	sion of	To be negotiated with the Illinois EPA's BOL during review of Group 2 Phase II Workplan.

Condition	Submittal	<u>Due Date</u>
	Submission of Group 2 Supplemental Investigation Workplan.	Within 90 days after notification of the need for Group 2 supplemental investigation by Illinois EPA's BOL.
	Completion of supplemental Investigation for Group 2 and Submission of Report and Summary.	To be negotiated with the Illinois EPA's BOL during review of Group 2 Supplemental Investigation Workplan.
	Submission of Group 3 Inspection and Maintenance Plan.	Within 150 days of effective date of Permit.
	Annual Progress Reports for Inspection and Maintenance Program.	By April 1 of the following year.

ATTACHMENT D: CORRECTIVE MEASURES PROGRAM REQUIREMENTS

3.0	Conceptual Design Report	Within 90 days of approval of the Phase II CMP Report.
4.0	Final Design Report	Within 120 days of approval of the Conceptual Design Report or as otherwise specified by the Illinois EPA.
5.0	Construction Progress Reports	Quarterly during the construction/installation of the corrective measures.
	Construction Report	To be specified in the Final Design Report
	Operation and Maintenance Plan	To be specified in the Final Design Report

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<u>Condition</u>	Submittal	<u>Due Date</u>
6.0	Periodic Operation and Maintenance Progress Reports	To be specified in the Operation and Maintenance Plan
ATTACHMENT	TH: SPECIAL CONDITIONS	
A.3	Notify Illinois EPA of sampling event	Prior to sampling
A.8	Report on repairs to the cover system	Within 30 days of completing repairs
A.9	Permit Modification	Within 30 days of the failure of a given area for the second time

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SECTION VI STANDARD CONDITIONS

GENERAL REQUIREMENTS

- 1. EFFECT OF PERMIT. The existence of a RCRA permit shall not constitute a defense to a violation of the Act or 35 Ill. Adm. Code Subtitle G, except for development, modification or operation without a permit. Issuance of this permit does not convey property rights or any exclusive privilege. Issuance of this permit does not authorize any injury to persons or property or invasion of other private rights, or infringement of state or local law or regulations. (35 Ill. Adm. Code 702.181)
- 2. PERMIT ACTIONS. This permit may be modified, reissued or revoked for cause as specified in 35 Ill. Adm. Codes 703.270 through 703.273 and Section 702.186. The filing of a request by the Permittee for a permit modification or revocation, or a notification of planned changes or anticipated noncompliance on the part of the Permittee does not stay the applicability or enforceability of any permit condition. (35 Ill. Adm. Code 702.146)
- 3. SEVERABILITY. The provisions of this permit are severable, and if any provision of this permit, or the application of any provision of this permit to any circumstance is held invalid, the application of such provision to other circumstances and the remainder of this permit shall not be affected thereby. (35 Ill. Adm. Code 700.107)
- 4. PERMIT CONDITION CONFLICT. In case of conflict between a special permit condition and a standard condition, the special condition will prevail. (35 Ill. Adm. Code 702.160)
- 5. DUTY TO COMPLY. The Permittee shall comply with all conditions of this permit except the extent and duration such noncompliance is authorized by an emergency permit. Any permit noncompliance constitutes a violation of the Act and is grounds for an enforcement action; permit revocation or modification; or for denial of a permit renewal application. (35 Ill. Adm. Code 702.141 and 703.242)
- 6. DUTY TO REAPPLY. If the Permittee wishes to continue an activity allowed by this permit after the expiration date of this permit, the Permittee must apply for a new permit at least 180 days before this permit expires, unless written permission for a later date has been granted by the Illinois EPA. (35 Ill. Adm. Codes 702.142 and 703.125)
- 7. PERMIT EXPIRATION. This permit and all conditions herein will remain in effect beyond the permit's expiration date if the Permittee(s) has submitted a timely and complete application (see 35 Ill. Adm. Code 703.181-703.209) and through no fault of the Permittee(s) the Illinois EPA has not issued a new permit as set forth in 35 Ill. Adm. Code 702.125.

- 8. NEED TO HALT OR REDUCE ACTIVITY NOT A DEFENSE. It shall not be a defense for the Permittee in an enforcement action that it would have been necessary to halt or reduce the permitted activity in order to maintain compliance with the conditions of this permit. (35 Ill. Adm. Code 702.143)
- 9. DUTY TO MITIGATE. In the event of noncompliance with the permit, the permittee shall take all reasonable steps to minimize releases of hazardous substances to the environment. The Permittee shall carry out such measures as may be necessary to prevent significant adverse impacts on human health or the environment. (35 Ill. Adm. Code 702.144)
- 10. PROPER OPERATION AND MAINTENANCE. The Permittee shall at all times properly operate and maintain all facilities and systems of treatment and control (and related appurtenances) which are installed or used by the Permittee to achieve compliance with the conditions of this permit. Proper operation and maintenance includes effective performance, adequate funding, adequate operator staffing and training, and adequate laboratory, and process controls, including appropriate quality assurance procedures. This provision requires the operation of back-up or auxiliary facilities or similar systems only when necessary to achieve compliance with the conditions of the permit. (35 Ill. Adm. Code 702.145)
- 11. DUTY TO PROVIDE INFORMATION. The Permittee shall furnish to the Illinois EPA, within a reasonable time, but no later than thirty days of a written request, any relevant information which the Illinois EPA may request to determine whether cause exists for modifying, revoking and reissuing or terminating this permit, or to determine compliance with this permit. The Permittee shall also furnish to the Illinois EPA, upon written request, copies of records required to be kept by this permit. (35 Ill. Adm. Code 702.148)
 - Furthermore, the Permittee shall provide to the Illinois EPA any documentation that is required by the Act or regulations.
- 12. INSPECTION AND ENTRY. The Permittee shall allow an authorized representative of the Illinois EPA, upon the presentation of credentials and other documents as may be required by law, to:
 - a. Enter at reasonable times upon the Permittee's premises where a regulated facility or activity is located or conducted, or where records must be kept under the conditions of this permit;
 - b. Have access to and copy, at reasonable times, any records that must be kept under the conditions of this permit;

- c. Inspect at reasonable times any facilities, equipment (including monitoring and control equipment), practices, or operations regulated or required under this permit; and
- d. Sample or monitor, at reasonable times, for the purposes of assuring permit compliance or as otherwise authorized by the appropriate statute, any substances or parameters at any location. (35 Ill. Adm. Code 702.149)

13. MONITORING AND RECORDS. (35 Ill. Adm. Code 702.150)

- a. Samples and measurements taken for the purpose of monitoring shall be representative of the monitored activity. The method used to obtain a representative sample of the waste must be the appropriate method from Appendix A of 35 Ill. Adm. Code 721. Laboratory methods must be those specified in Test Methods for Evaluating Solid Waste: Physical/Chemical Methods, SW-846, latest versions; Methods for Chemical Analysis of Water and Wastes, EPA-600/4-79-020, latest versions; or an equivalent method as specified in the approved Waste Analysis Plan.
- b. The Permittee shall retain records of all monitoring information, including all calibration and maintenance records and all original strip chart recordings for continuous monitoring instrumentation, copies of all reports and records required by this permit, and records of all data used to complete the application for this permit for a period of at least 3 years from the date of the sample, measurement, report or application. These periods may be extended by request of the Illinois EPA at any time. The permittee shall maintain records from all groundwater monitoring wells and associated groundwater surface elevations, for the active life of the facility, and for disposal facilities for the post-closure care period as well.
- c. Records of monitoring information shall include:
 - i. The date(s), exact place, and time of sampling or measurements;
 - ii. The individual(s) who performed the sampling or measurements;
 - iii. The date(s) analyses were performed;
 - iv. The individual(s) who performed the analyses;
 - v. The analytical technique(s) or method(s) used; and
 - vi. The result(s) of such analyses. (35 Ill. Adm. Code 702.150)

- 14. REPORTING PLANNED CHANGES. The permittee shall give written notice to the Illinois EPA as soon as possible of any planned physical alterations or additions to the permitted facility. In general, proposed changes to the facility will need to be submitted to the Illinois EPA as permit modification request that complies with the requirements of 35 IAC 703.280. (35 Ill. Adm. Codes 702.152(a))
- 15. CONSTRUCTION CERTIFICATION. For a new hazardous waste management facility, the permittee shall not commence treatment, storage or disposal of hazardous waste; and for a facility being modified the permittee shall not treat, store or dispose of hazardous waste in the modified portion of the facility, until:
 - a. The permittee has submitted to the Illinois EPA by certified mail or hand delivery a letter signed by the permittee and a registered professional engineer stating that the facility has been constructed or modified in compliance with the permit; and
 - b. 1. The Illinois EPA has inspected the modified or newly constructed facility and finds it is in compliance with the condition of the permit; or
 - 2. If, within 15 days of the date of submission of the letter in paragraph (a), the permittee has not received notice from the Illinois EPA of its intent to inspect, prior inspection is waived and the permittee may commence treatment, storage or disposal of hazardous waste. (35 Ill. Adm. Code 703.247)
- 16. ANTICIPATED NONCOMPLIANCE. The Permittee shall give advanced written notice to the Illinois EPA of any planned changes in the permitted facility or activity which may result in noncompliance with permit requirements, regulations, or the Act. (35 Ill. Adm. Code 702.152(b))
- 17. TRANSFER OF PERMITS. This permit may not be transferred by the permittee to a new owner or operator unless the permit has been modified or reissued pursuant to 35 IAC 703.260(b) or 703.272. Changes in the ownership or operational control of a facility must be made as a Class 1 modification with the prior written approval of the Illinois EPA. The new owner or operator shall submit a revised permit application no later than 90 days prior to the scheduled change. (35 Ill. Adm. Code 703.260)
- 18. MONITORING REPORTS. Monitoring results shall be reported at the intervals specified in the permit. (35 Ill. Adm. Code 702.152(d))

19. COMPLIANCE SCHEDULES. Reports of compliance or noncompliance with, or any progress reports on, interim and final requirements contained in any compliance schedule of this permit shall be submitted no later than specified in 35 Ill. Adm. Codes 702.162 and 702.152(e).

20. TWENTY-FOUR HOUR REPORTING.

- a. The Permittee shall report to the Illinois EPA any noncompliance with the permit, regulations, the Act or any other matter which may endanger human health or the environment. Any such information shall be reported orally within 24 hours from the time the Permittee becomes aware of the following circumstances. This report shall include the following:
 - i. Information concerning the release of any hazardous substance, agrichemical or pesticide that may cause harm to public drinking water supplies.
 - ii. Information concerning the release or discharge of any hazardous waste or of a fire or explosion at the HWM facility, which could threaten the environment or human health outside the facility.
- b. The description of the occurrence and its cause shall include:
 - i. Name, address, and telephone number of the owner or operator;
 - ii. Name, address, and telephone number of the facility;
 - iii. Date, time, and type of incident;
 - iv. Name and quantity of material(s) involved;
 - v. The extent of injuries, if any;
 - vi. An assessment of actual or potential hazards to the environment and human health outside the facility, where applicable; and
 - vii. Estimated quantity and disposition of recovered material that resulted from the incident.

- c. A written submission shall also be provided within 5 days of the time the Permittee becomes aware of the circumstances. The written submission shall contain a description of the noncompliance and its cause; the period of noncompliance including exact dates and times and if the noncompliance has not been corrected; the anticipated time it is expected to continue; and steps taken or planned to reduce, eliminate, and prevent recurrence of the noncompliance. The Illinois EPA may waive the five day written notice requirement in favor of a written report within fifteen days. (35 Ill. Adm. Codes 702.152(f) and 703.245(b))
- 21. OTHER NONCOMPLIANCE. The Permittee shall report all instances of noncompliance not otherwise required to be reported under Standard Conditions 17, 18, and 19, at the time monitoring reports, as required by this permit, are submitted. The reports shall contain the information listed in Standard Condition 19. (35 Ill. Adm. Code 702.152(g))
- 22. OTHER INFORMATION. Where the Permittee becomes aware that it failed to submit any relevant facts in the permit application, or submitted incorrect information in a permit application or in any report to the Illinois EPA, the Permittee shall promptly submit such facts or information. (35 Ill. Adm. Code 702.152(h))
- 23. REPORTING REQUIREMENTS. The following reports required by 35 Ill. Adm. Code 724 shall be submitted in addition to those required by 35 Ill. Adm. Code 702.152 (reporting requirements):
 - a. Manifest discrepancy report: if a significant discrepancy in a manifest is discovered, the permittee must attempt to reconcile the discrepancy with the waste generator or transporter. If the discrepancy is not resolved within 15 days after receiving the waste, the permittee must immediately submit to the Illinois EPA a letter describing the discrepancy and attempts to reconcile it and a copy of the manifest or shipping paper at issue. (35 Ill. Adm. Code 724.172(b))
 - Unmanifested waste report: The permittee must submit to the Illinois EPA within 15 days of receipt of unmanifested waste an unmanifested waste report on EPA form 8700-13B. (35 Ill. Adm. Code 724.176)
 - c. Annual report: an annual report must be submitted covering facility activities during the previous calendar year. (35 Ill. Adm. Code 724.175)
- 24. SUBMITTAL OF REPORTS OR OTHER INFORMATION. All written reports or other written information required to be submitted by the terms of this permit shall be sent to:

Illinois Environmental Protection Agency
Bureau of Land, Planning and Reporting Section
1021 North Grand Avenue East
Post Office Box 19276
Springfield, Illinois 62794-9276

- 25. SIGNATORY REQUIREMENT. All permit applications, reports or information submitted to the Illinois EPA shall be signed and certified as required by 35 Ill. Adm. Code 702.126 and 702.151.
- 26. CONFIDENTIAL INFORMATION. Any claim of confidentiality must be asserted in accordance with 35 Ill. Adm. Code 702.103 and 161.
- 27. DOCUMENTS TO BE MAINTAINED AT FACILITY SITE. The Permittee shall maintain at the facility, until closure is complete, the following documents and amendments, revisions and modifications to these documents:
 - a. Waste analysis plan as required by 35 Ill. Adm. Code 724.113(b) and this permit.
 - b. Personnel training documents and records as required by 35 Ill. Adm. Code 724.116(d) and this permit.
 - c. Contingency plan as required by 35 Ill. Adm. Code 724.153(a) and this permit.
 - d. Closure plan as required by 35 Ill. Adm. Code 724.212(a) and this permit.
 - e. Cost estimate for facility closure as required by 35 Ill. Adm. Code 724.242(d) and this permit.
 - f. Operating record as required by 35 Ill. Adm. Code 724.173 and this permit.
 - g. Inspection schedules as required by 35 Ill. Adm. Code 724.115(b) and this permit.
- 28. WASTE MINIMIZATION. The Permittee shall certify at least annually that the Permittee has a program in place to reduce the volume and toxicity of hazardous waste that he generates to the degree determined by the Permittee to be economically practicable, and the proposed method of treatment, storage, or disposal is that practicable method currently available to the Permittee which minimizes the present and future threat to human health and the environment, in accordance with 35 Ill. Adm. Code 724.173(b)(9).

GENERAL FACILITY STANDARDS

- 29. NOTICE OF WASTE FROM A FOREIGN SOURCE. The permittee who has arranged to receive hazardous waste from a foreign source must notify the Illinois EPA in writing at least four weeks in advance of the date the waste is expected at the facility. (35 Ill. Adm. Code 724.112(a))
- 30. NOTICE OF WASTE FROM OFF-SITE. The Permittee who receives hazardous waste from an off-site source (except where the Permittee is also the generator), must inform the generator in writing that the permittee has the appropriate permits for, and will accept, the waste the generator is shipping. The Permittee must keep a copy of this written notice as part of the facility operating record. (35 Ill. Adm. Code 724.112(b))
- 31. GENERAL WASTE ANALYSIS. The Permittee shall comply with the procedures described in the approved waste analysis plan. (35 Ill. Adm. Code 724.113)
- 32. SECURITY. The Permittee shall comply with the security provisions of 35 Ill. Adm. Code 724.114(b) and (c).
- 33. GENERAL INSPECTION REQUIREMENTS. The Permittee shall follow the approved inspection schedule. The Permittee shall remedy any deterioration or malfunction discovered by an inspection as required by 35 Ill. Adm. Code 724.115(c). Records of inspections shall be kept at the facility as required by 35 Ill. Adm. Code 724.115(d).
- 34. PERSONNEL TRAINING. The Permittee shall conduct personnel training as required by 35 Ill. Adm. Code 724.116 and shall maintain training documents and records as required by 35 Ill. Adm. Code 724.116(d) and (e).
- 35. GENERAL REQUIREMENTS FOR IGNITABLE, REACTIVE, OR INCOMPATIBLE WASTE. The Permittee shall comply with the requirements of 35 Ill. Adm. Code 724.117.

PREPAREDNESS AND PREVENTION

36. DESIGN AND OPERATION OF FACILITY. The Permittee shall maintain and operate the facility to minimize the possibility of fire, explosion, or any unplanned sudden or non-sudden release of hazardous substance, agrichemical, or pesticide to air, soil, or surface water which could threaten human health or the environment. (35 Ill. Adm. Code 724.131) Additionally, the Permittee shall remediate any release of a hazardous substance, agrichemical or pesticide.

- 37. REQUIRED EQUIPMENT. The Permittee shall equip the facility with the equipment set forth in the approved contingency plan, as required by 35 Ill. Adm. Code 724.132.
- 38. TESTING AND MAINTENANCE OF EQUIPMENT. The Permittee shall test and maintain the equipment specified in condition 36 as necessary to assure its proper operation in time of emergency. Such testing and maintenance activities are set forth in the approved inspection schedule. (35 Ill. Adm. Code 724.133)
- 39. ACCESS TO COMMUNICATIONS OR ALARM SYSTEM. The Permittee shall maintain access to the communications or alarm system as required by 35 Ill. Adm. Code 724.134.
- 40. REQUIRED AISLE SPACE. The Permittee shall maintain aisle space as required by 35 III. Adm. Code 724.135 and National Fire Protection Association (NFPA) requirements.
- 41. ARRANGEMENTS WITH STATE AND LOCAL AUTHORITIES AND EMERGENCY RESPONSE CONTRACTORS. The Permittee shall attempt to make emergency response arrangements with State and local authorities and agreements with State emergency response teams and emergency response contractors and equipment suppliers as required by 35 Ill. Adm. Code 724.137. If State or local officials refuse to enter in preparedness and prevention arrangements with the Permittee, the Permittee must document this refusal in the operating record.

CONTINGENCY PLAN

- 42. IMPLEMENTATION OF PLAN. The provisions of the contingency plan must be carried out by the Permittee immediately whenever there is a fire, explosion or release of hazardous waste or hazardous waste constituents which could threaten human health or the environment (35 Ill. Adm. Code 724.151(b)). At a minimum, this includes any fire or explosion which occurs in an area where hazardous waste is being managed (treated, stored or disposed) (35 IAC 703.241). Within 15 days of any incident that requires implementation of the contingency plan, the owner or operator must submit a written report to the Illinois EPA as required by 35 Ill. Adm. Code 724.156(j).
- 43. COPIES OF PLAN. A copy of the contingency plan, including any revisions, must be maintained at the facility and submitted to all local police and fire departments, hospitals and state and local emergency response teams as required by 35 Ill. Adm. Code 724.153.
- 44. AMENDMENTS TO PLAN. The Permittee shall review and immediately amend, if necessary, the contingency plan, as required by 35 Ill. Adm. Code 724.154.

45. EMERGENCY COORDINATOR. A trained emergency coordinator shall be available at all times in case of an emergency as required by 35 Ill. Adm. Code 724.155 and 724.156.

MANIFEST SYSTEM RECORD KEEPING AND REPORTING

- 46. MANIFEST SYSTEM. The Permittee shall comply with the manifest requirements of 35 Ill. Adm. Code 724.171, 724.172 and 724.176.
- 47. OPERATING RECORD. The Permittee shall maintain a written operating record at the facility in accordance with 35 Ill. Adm. Code 724.173.
- 48. ANNUAL REPORT. The Permittee shall prepare and submit an annual report to the Illinois EPA prior to March 1st of each year in accordance with the requirements of 35 Ill. Adm. Code 724.175.

CLOSURE

- 49. PERFORMANCE STANDARD. The Permittee shall close the facility as required by 35 III. Adm. Code 724.211 and in accordance with the approved closure plan.
- 50. AMENDMENT TO CLOSURE PLAN. The Permittee must amend the closure plan whenever there is a change in the expected year of closure or whenever a change in the facility operation plans or facility design affects the closure plan pursuant to 35 Ill. Adm. Code 724.212(c).
- 51. NOTIFICATION OF CLOSURE. The Permittee shall notify the Illinois EPA at least 45 days prior to the date it expects to begin closure. (35 Ill. Adm. Code 724.212(d))
- 52. TIME ALLOWED FOR CLOSURE. After receiving the final volume of hazardous waste, the Permittee shall treat or remove from the site all hazardous waste and complete closure activities in accordance with the schedule(s) specified in the closure plan. (35 Ill. Adm. Code 724.213)
- 53. DISPOSAL AND/OR DECONTAMINATION OF EQUIPMENT. When closure is completed, the Permittee shall decontaminate and/or dispose of all facility equipment and structures as required by the approved closure (35 Ill. Adm. Code 724.214) plan.

- 54. CERTIFICATION OF CLOSURE. When closure is completed, the Permittee shall submit certification to the Illinois EPA in accordance with 35 Ill. Adm. Code 724.215 that the facility has been closed as specified by the approved closure plans.
- 55. COST ESTIMATE FOR FACILITY CLOSURE. The Permittee's original closure cost estimate, prepared in accordance with 35 Ill. Adm. Code 724.242, must be:
 - a. Adjusted for inflation either 60 days prior to the anniversary date of the establishment of the financial instrument(s) used to comply with Section 724.243. If the owner/operator is using the financial test or corporate guarantee, it must be updated for inflation within 30 days after close of the firm's fiscal year, and before the submission of updated information to the Illinois EPA as specified in Section 724.243(f).
 - b. Revised no later than 30 days after the Illinois EPA has approved a request to modify the closure plan, if the change in the closure plan increases the cost of closure.
 - c. Kept on record at the facility and updated. (35 Ill. Adm. Code 724.242)
 - d. Made immediately available to Illinois EPA personnel upon Illinois EPA request.
- 56. FINANCIAL ASSURANCE FOR FACILITY CLOSURE. The Permittee shall demonstrate compliance with 35 Ill. Adm. Code 724.243 by providing documentation of financial assurance, as required by 35 Ill. Adm. Code 724.251, in at least the amount of the cost estimates required by the previous Permit Condition. Changes in financial assurance mechanisms must be approved by the Illinois EPA pursuant to 35 Ill. Adm. Code 724.243.
- 57. LIABILITY REQUIREMENTS. The Permittee shall demonstrate continuous compliance with the requirements of 35 Ill. Adm. Code 724.247 and the documentation requirements of 35 Ill. Adm. Code 724.251.
- 58. INCAPACITY OF OWNERS OR OPERATORS, GUARANTORS, OR FINANCIAL INSTITUTIONS. The Permittee shall comply with 35 Ill. Adm. Code 724.248 whenever necessary.

LAND DISPOSAL RESTRICTIONS

59. DISPOSAL PROHIBITION. Any waste identified in 35 Ill. Adm. Code Part 728, Subpart C, or any mixture of such a waste with non-restricted wastes, is prohibited from land disposal unless it meets the standards of 35 Ill. Adm. Code Part 728, Subpart D, or unless it

meets the requirements for exemptions under Subpart C. "Land disposal" means placement in or on the land and includes, but is not limited to, placement in a landfill, surface impoundment, waste pile, injection well, land treatment facility, or vault intended for disposal.

60. DILUTION PROHIBITION. The Permittee shall not in any way dilute a restricted waste or residual from treatment of a restricted waste as a substitute for adequate treatment in order to achieve compliance with 35 Ill. Adm. Code 728, Subpart D (35 Ill. Adm. Code 728.103).

61. WASTE ANALYSIS.

- a. The Permittee must test his waste or extract developed, using the test method identified in Appendix I of 40 CFR Part 268, or use knowledge of the waste, to determine if the waste is restricted from land disposal.
- b. For any waste with treatment standards expressed as concentrations in the waste extract, the Permittee must test the treatment residues or an extract of such residues developed using the test method described in Appendix I of 40 CFR Part 268, to assure that the treatment residues or extract meet the applicable treatment standard.
- c. If the treatment residues do not meet the treatment standards, or if the Permittee ships any restricted wastes to a different facility, the Permittee shall comply with the requirements applicable to generators in 35 Ill. Adm. Code 728.107 and 728.150(a)(1).

62. STORAGE RESTRICTIONS

- a. The Permittee shall not store hazardous wastes restricted from land disposal under 35 Ill. Adm. Code Part 728, Subpart C unless such wastes are stored only in containers or tanks, and are stored solely for the purpose of the accumulation of such quantities as is necessary to facilitate proper recovery, treatment, or disposal, and: (1) each container is clearly marked to identify its contents and the date each period of accumulation begins; (2) each tank is clearly marked to identify its contents, the quantity of each hazardous waste received, and the date each period of accumulation begins. In lieu of marking each tank with the required information, the Permittee may maintain such information as part of the operating record of the facility (35 Ill. Adm. Code 728.150).
- b. The Permittee must comply with the operating record requirements of 35 Ill. Adm. Code 724.173.

- 63. NEW DETERMINATIONS OF PROHIBITED WASTES. Wastes which are prohibited from land disposal under 35 Ill. Adm. Code Part 728, Subpart C, or for which treatment standards have been established under 35 Ill. Adm. Code 728, Subpart D, subsequent to the date of issuance of this permit, shall be subject to the conditions number 58 through 61 above.
- 64. DEFINITIONS. Within the scope of this permit "days" refers to calendar days unless otherwise specified.

ECB:WRW:bjh\971078S.WPD

ATTACHMENT A

GROUNDWATER MONITORING ATTACHMENTS

CITGO Lemont Refinery

1978030004

RCRA LOG NO. B-162

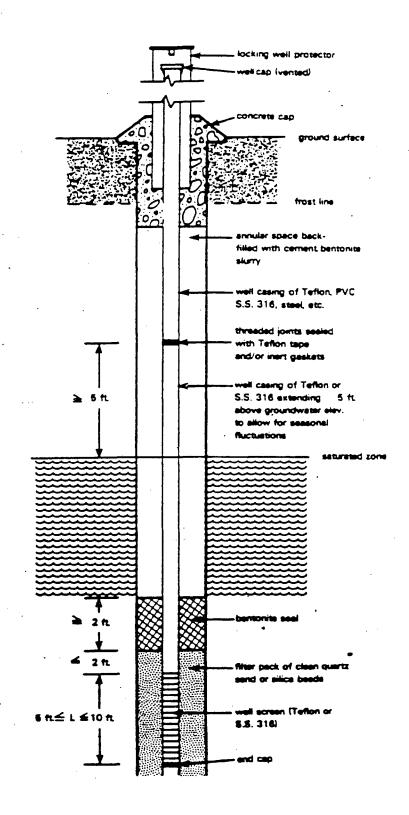
TABLE 1

IEPA MONITOR WELL PLUGGING PROCEDURES (test boring)

	Well Construction	Plugging Procedure
: Wells	I-Aif backfilled with cement grout above bentonite seal and/or sandpack:	 Cut casing off at desired depth. Mix neat cement slurry (5 gal. water per 94 lb. bag cement) Insert tremi pipe (1^m i.d. pvc) into well and extend to bottom. Slowly pump slurry under low pressure through tremi pipe. Slowly withdraw tremi pipe - making sure bottom of pipe remains below pure slurry. Continue slow pumping until all formation water and the watery slurry mix is displaced from top of casing.
I. Unconsolidated Sediment	I-Bif backfilled with soft sediments (cuttings) above bentonite seal and/or sandpack:	 Knock out and remove thin surface concrete plug, if present. Re-auger entire length of well. Remove well casing from re-augered borehole. Mix neat cement slurry (5 gal. water per 94 lb. bag cement). Insert tremi pipe (1" i.d. pvc) into augers and extend to bottom. Slowly pump slurry under low pressure through tremi pipe. Continue slow pumping until all formation water and the watery slurry mix is displaced from top of casing. Slowly withdraw tremi pipe - making sure bottom of pipe remains below pure slurry. Pull a flight of augers (5' if in unstable materials and hole collapse is likely or 10' if in competent material and collapse is unlikely). Top off cement slurry after each flight is removed.
	I-Cif monitor well construction is unknown:	1. Follow procedures in 1-A.
II. Bedrock Wells	II-AAll bedrock monitor wells:	 Cut casing off at desired depth. Mix neat cement slurry (5 gal. water per 94 lb. bag cement). Insert tremi-pipe (1^m i.d. pvc) into well and extend to bottom. Slowly pump slurry under low pressure through tremi pipe. Slowly withdraw tremi pipe making sure bottom of pipe remains below pure slurry. Continue slow pumping until all formation water and the watery slurry mix is displaced from top of casing.

JM:tk:2/6/31

Monitoring Well Diagram



No No Fection Recover	noietion Depth
Site File Name Surface Elev Cor Fed ID No. Auger Depth R Quadrangle Sec. T. R. Date: Start SAMPLES Boring Location SAMPLES 3 3 6	Personnel 1 - H - H - H - H - H - H - H - H - H -
Fed ID No. Auger Deptn R Quadrangle Sec. T. R. Date: Start Boring Location SAMPLES 3 C	Personnel 3 - 1 - 1 -
Boring Location SecTR Date: Start	Personnel
Boring Location SAMPLES	Personnel 3 -) - H -
Boring Editation	3 -) - H -
Drilling Equipment Elev. DESCRIPTION Depth in feet Sample Recover Right Sample No No Not Not Not Not Not Not Not Not N	f - f -
Elev. DESCRIPTION Depth in feet S S S S S S S S S S S S S S S S S S	
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	ection Agency Well Completion Report
	WELL POSITION - UPGRAD, DHORAD, UNKN (CRCLE ONE)
	-) LATITUDE: LONGITUDE:
SURVEYED BY:	ALL REGISTRATION #:
DRILLING CONTRACTOR:	DRILLER: :
Œ€OLDĢST:	FIRM:
DRILLING METHOD:	DRILLING FLUTOS (TYPE):
DATE STARTED: DATE FINISHED:	
REPORT FORM COMPLETED BY:	
ANNULAR SPACE DETAILS	ELEVATIONS DEPTHS (.01 ft) (MSL) (BGS)
	TOP OF PROTECTIVE CASIN
TYPE OF SURFACE SEAL:	TOP OF RISER PIPE
	GROUND SURFACE
TYPE OF ANNULAR SEALANT:	TOP OF ANNULAR SEALANT
INSTALLATION METHOD:	
SETTING TIME:	
	DEPTH TO WATER
TYPE OF BENTONITE SEAL - GRANULAR, PELLET, SLURRY	
(CIRCLE ONE)	TOP OF SEAL
INSTALLATION METHOD:	TOP OF SANDPACK
SETTING TIME:	
	TOP OF SCREEN
TYPE OF SAND PACK:	BOTTON OF SCREEN
GRAIN SIZE: (SIEVE SIZE)	
DISTALLATION METHOD:	BOTTOM OF WILL
•	BOTTOM OF BOREHOLE BOTTOMOCO TO A NATIONAL GEOCETIC VEHTICAL BATUM
	MEASUREMENTS
	DIAMETER OF BOREHOLE (in)
WELL CONSTRUCTION	ID OF RISER PIPE (in) PROTECTIVE CASING LENGTH (ff)
MATERIALS (CRCLE ONE)	RISER PIPE LENGTH (#)
PROTECTIVE CASING SS304, SS316, PTFE, PVC OR	
RISER PIPE ABOVE W.T. \$5504, \$5316, FIFE, FVC OR	
MISER THE ABOVE W.I. 33304, 33316, THE, TYC OR	OTHER: SCREEN LENGTH (144 BLOT TO LAST BLOT)
RISER PIPE BELOW W.T. 55504, 55516, PTFE, PVC OR 6 SCREEN 55504, 55316, PTFE, PVC OR 6	OTHER:

ILLINOIS ENVIRONMENTAL PROTECTION AGENCY DIVISION OF LAND POLLUTION CONTROL CHEMICAL ANALYSIS FORM

RECORD TRAI			
L P C S M 0 1 A 8			
REPORT DUE DATE/	/	FEDERAL ID NI	JMBER
		TEDERGE ID N	MIDEN
SITE INVENTORY NUMBER			OR POINT NUMBER
REGIONCO		DATE	COLLECTED / /
FACILITY NAME			· · · · · · · · · · · · · · · · · · ·
FOR IEPA USE ONLY	BACKGF	OUND SAMPLE (X)	TIME COLLECTED: 54 (24 Hr. Clock) 55 H M 58
LAB		TO COLLECT SAMP	
DATE RECEIVED / / Y	-	R POINT SAMPLED I	
	SAMPLE FIEL	O FILTERED — INOR	GANICS (X)ORGANICS (X)
SAMPLE APPEARANCE	63 — — — — — — —		61 62
COLLECTOR COMMENTS 1			102
LAB COMMENTS			142
RECORD CODE L P C	S M 0 2 7	TRANS CODE	A (COLUMNS 9-29 FROM ABOVE)
FIELD MEASUREMENTS CONSTITUENT DESCRIPTION REQUIRED UNIT OF MEASU	AND STORET	Remarks See Inst. Replicate	VALUE
	30	34 35 36 37	38 47
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IEPA/DLPC	CHEMICAL ANAL	YSIS FO	RM		Page of
RECORD CODE L P C S M	0 2	TRANS	CODE	A 8	
SITE INVENTORY NUMBER			MON		POINT NUMBER
CO. 9	18		DAT	E COLI	LECTED//
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FACILITY NAME			шш	29	
LAB MEASUREMENTS CONSTITUENT DESCRIPTION AND	STORET NUMBER	Remarks See Inst.	Replicate	< or	VALUE
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All analytical procedures must be performed in accordance with the methods contained in "Test Methods for Evaluating Solid Wastes, Physical/Chemical Methods," SW-846, 3rd Edition, September 1986 or equivalent methods approved by the Agency. Proper sample chain of custody control and quality assurance/quality control procedures must be maintained in accordance with the facility sampling and analysis plan.

*Only Keypunch with Data in Column 35 or Columns 38-47

ATTACHMENT B

INSPECTION SCHEDULES FOR CLOSURE AND POST-CLOSURE

CITGO Lemont Refinery

1978030004

RCRA LOG NO. B-162

CLOSURE PERIOD INSPECTION FORM LAND TREATMENT FACILITY UNO-VEN Refinery

Lemont, Illinois

GENERAL INFORMATION

te:	Read the Inspection Form Instructions and Inspections Procedures on Page 9 of This Form Before Conducting the Inspection					
	NAME OF INSPECTOR:					
	COMPANY:					
	DATE:					
	TIME: AM or PM					
	WEATHER:					
	TEMPERATURE°F					
	SUNNY CLOUDY WINDY RAINY SNOWY					
	GROUND CONDITIONS: WET \square DRY \square SNOW \square					
	IS THIS A SCHEDULED INSPECTION? YES NO					
	IF NO, EXPLAIN:					
	CLOSURE PHASE: PRE-COVER CONSTRUCTION					
	☐ COVER CONSTRUCTION					
						
	☐ POST COVER CONSTRUCTION					
	MONITORING WELL INSPECTION					
	ARE THE MONITORING WELLS LOCKED?					
	IF NO, REFERENCE SPECIFIC WELL(S) AND EXPLAIN:					
	ARE GUARD POSTS OR PROTECTIVE CASINGS DAMAGED? YES NO IF YES, REFERENCE SPECIFIC WELL(S) AND EXPLAIN:					

				<u></u>
11)	ARE THE WELL LOCKS OPERABLE? IF NO, REFERENCE SPECIFIC WELL(S) AND EX	□ YES I		
12) NO	ARE ID NUMBERS CLEARLY VISIBLE ON WELL		☐ YES	
		•		
13)	ARE THERE GAPS OR CRACKS IN THE SURFAC IF YES, REFERENCE SPECIFIC WELL(S) AND EX] NO
<u> </u>				
-	PERIMETER FENCE INS	PECTION		-
14)	ANY SIGNS OF UNAUTHORIZED ENTRY?	☐ YES	□ NO	
15)	ARE ANY FENCE POSTS DAMAGED?	☐ YES	□ NO	
16)	DOES FENCE APPEAR IN GOOD CONDITION?	☐ YES	□ №	
17)	ARE ANY SIGNS MISSING?	☐ YES	□ NO	
18)	ARE THE SIGNS READABLE?	☐ YES	□ NO	
19)	UPON ARRIVAL, WERE THE GATES LOCKED?	☐ YES	□ №	
COMM	ŒNTS:			
				_
				

COVER SYSTEM INSPECTION

20)	IS THERE ANY SETTLING, SUBSIDENCE, OR EROSION EVIDENT?								
	AREA I	☐ YES	□ NO						
	AREA II	☐ YES	□ NO						
	AREA III	☐ YES	П ио						
	AREA IV	☐ YES	□ NO						
	IF YES, NOTE	AREA NUMBER A	AND EXPLAIN:						
•									
21)	ARE THERE A	NY TREES OR SH	RUBS GROWING IN THE COVER SYSTEM?)					
	AREA I	☐ YES	□ NO						
	AREA II	☐ YES	□ NO						
	AREA III	☐ YES	□ NO						
	AREA IV	☐ YES	□ NO						
	IF YES, NOTE	AREA AND EXPL	AIN:						
				_					

22)	DOES THE										
	COVER SYS			EVIL	ENCE	OF	SUBSIDE	INCE	OR	EROSIO	N IS
	AREA I		YES		NO						
	AREA II		YES		NO						
	AREA III		YES		NO				,		•
	AREA IV		YES		NO						
	IF YES, NOT	E AREA ANÎ) EXPL	AIN: _	· · · · · · · · · · · · · · · · · · ·						
									-		
											
23)	ARE THERE	any signs	OF STF	RESSEI	VEGE	TAT	TION OR N	10 VE	GET	'ATION?	
	AREA I		YES		NO						
	AREA II		YES		NO						
	AREA III		YES		NO						
	AREA IV		YES		NO						
	IF YES, NOT	E AREA ANI	EXPL.	AIN:						· -	
					· · · · · · · · · · · · · · · · · · ·						
24)		AND/ CICNIC	OE DIT	20011	N/C 4 N/	T) ()	I C D (TIT		T.D.	03.1077723.4	
24)	ARE THERE	_				HVLA	T2 IN 1 HI	E COV	/EK:	SYSIEM	?
	AREA I	·	YES		NO						•
	AREA II	. 🗆	YES	Ш	NO						
	AREA III		YES		NO						
	AREA IV		YES		NO						
	IF YES, NOTI	E AREA ANI	EXPL.	AIN:		<u>.</u>		····		·	

ARE THERE ANY SURFACE DISTURBANCES FROM VEHICLES OR OTHER

25)

PHYSICAL ACTIONS?

	AREA I	☐ YES		NO				
	AREA II	☐ YES		NO				
	AREA III	☐ YES		NO				
	AREA IV	☐ YES		NO				
٠	IF YES, NOTE	AREA AND EXPL	AIN: _					
					<u>.</u>	•		
						7.1	· · · · · · · · · · · · · · · · · · ·	_
26)	IS THERE ANY	PRECIPITATION	·		THE CO	OVER SYST	EM?	
	AREA I	☐ YES		NO				
	AREA II	☐ YES		NO				
	AREA III	☐ YES		NO				
	AREA IV	☐ YES		NO	-,			
	IF YES, NOTE	AREA AND EXPLA	AIN: _					
					·			
_					·			
	ST	ORMWATER MA	NAGE	MENT S	SYSTEN	INSPECTI	ION	
Y								
inter	mittent Stream							
27)	ARE THERE A	NY OBSTRUCTION	NS TO	FLOW?		☐ YES	□ NO	
ŕ	IF YES, EXPLA	IN:				· · · · · · · · · · · · · · · · · · ·		
28)	IS THERE ANY	Y EVIDENCE OF E	EROSI	ON OR E	DETERIO	ORATION T	HAT COULD	
	RENDER THE	STRUCTURE OR	CHAI	NNEL IN	VEFFEC	TIVE OR T	HAT COULD	
		OF THE LANDFA	RM PL	OT COV	ER SYS	STEMS?		
	☐ YES ☐	NO						

	IF YES, EXPLAIN:	
Culv	erts	. ,
29)	ARE THE INVERTS FREE OF DEBRIS? IF NO, EXPLAIN:	
30)	IS THERE ANY EVIDENCE OF EROSION OR DE YES NO IF YES, EXPLAIN:	ETERIORATION?
Gras	s Waterways and Diversion Channels (Applicable to	Areas III and IV only)
31)	IS THERE ANY EVIDENCE OF EROSION OF COULD RENDER THE STRUCTURE OR CHAN COULD DAMAGE ANY OF THE LANDFARM PL YES NO IF YES, EXPLAIN:	NEL INEFFECTIVE OR THAT
32)	IS THERE EXCESSIVE SILTATION? IF YES, EXPLAIN:	☐ YES ☐ NO
33)	IS THE VEGETATION IN THE CHANNELS ADE	OUATE? Tyes Tho

45	1 DE 20 11 DE 12	יייי אין אין אין אין אין אין אין אין אין	ONS TO FLOW?		res 🗆 no
4)	 		JNS TO FLOW?		•
emp	porary Run-On an	d Run-Off Contro	ol System		
5)	ADE THE TEM	ODARV DINLON	N AND RUN-OFF	CONTROL	TEASTIDES STIC
رد			FENCES, AND		
	FUNCTIONAL (CONDITION?			
		YES	□ NO		•
	AREA I	LJ YES			
	AREA I AREA II	☐ YES	_		
			_		
	AREA II	☐ YES	Ои		

BENCHMARK INSPECTION

36)	IS THE SURVEYED BENCHMARK USED TO PREPARE THE SURVEY PLATFOR THE LAND TREATMENT FACILITY VISIBLE, ACCESSIBLE, CLEARLY								
		ND TREATMENT DUNDISTURBED		ISIBLE, ACCE	SSIBLE, CLEARLY				
	☐ YES [•						
	IF NO, EXPLAI	N:			, , , , , , , , , , , , , , , , , , ,				
	•	·							
37)	UNSATURATE		TORING PRO		NG GRID FOR THE LE, ACCESSIBLE,				
	AREA I	☐ YES	□ NO						
	AREA II	☐ YES	□ NO						
	AREA III	☐ YES	□ NO	•					
	AREA IV	☐ YES	□ NO						
	IF NO, NOTE A	REA AND EXPLA	IN:	-					
				· · · · · · · · · · · · · · · · · · ·					
	•	<u>AC</u>	TION ITEMS						
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•	RE-INSPECTION NOTES		
		. . .	

INSPECTION FORM INSTRUCTIONS AND INSPECTION PROCEDURES

- 1. Complete General Information section. Please note whether this inspection is occurring during the pre- cover construction phase, during the cover construction phase, or subsequent to cover construction (i.e., during the cover vegetative growth phase but pre- post-closure).
- 2. Complete 19) in Perimeter Fence Inspection section.

Refer to Drawings 1 through 11 in the Closure Plan to complete the following:

3. Inspect each of the four (4) cover areas sucessively. The inspector shall walk the perimeter of each area and across the cover from a selected point on the cover perimeter (inspector's discretion) to a perimeter point on the opposite side of the cover. Carefully inspect areas where the intermittent stream overlaps with the cover system transition. The inspector may

traverse the cover system more than once if deemed necessary. Complete the Cover System Inspection section for each area.

Note: All monitoring wells, benchmarks, run-on and run-off control systems, and perimeter fencing encountered during the cover system inspection may also be inspected.

Complete the appropriate sections of the Inspection Form for these structures.

4. Inspect the culverts and rip rap in the intermittent stream channel within the LTF. Based on observations made pursuant to instructions 3 and 4, complete the Stormwater Management System Inspection section.

Complete the inspection of all monitoring wells, benchmarks, run-on and run-off control systems, and perimeter fencing that was not encountered or inspected during 3 and 4 above. This includes all of the above listed structures not located on the LTF (e.g., monitoring wells located in the adjacent Agricultural Land etc.).

POST-CLOSURE PERIOD INSPECTION FORM LAND TREATMENT FACILITY UNO-VEN Refinery

Lemont, Illinois

GENERAL INFORMATION

Motas	Read the Inspection Form Instructions and Inspections Procedures on Page 9 of This
Note:	Form Before Conducting the Inspection
	Form before Conducting the Inspection
1)	NAME OF INSPECTOR:
2)	COMPANY:
3)	DATE:
4).	TIME: AM or PM
5)	WEATHER:
	TEMPERATURE°F
	SUNNY \square CLOUDY \square WINDY \square RAINY \square SNOWY \square
6)	GROUND CONDITIONS: WET DRY SNOW SNOW
7)	IS THIS A SCHEDULED INSPECTION? YES NO
.,	IF NO, EXPLAIN:
	MONITORING WELL INSPECTION
8)	ARE THE MONITORING WELLS LOCKED? ☐ YES ☐ NO
·	IF NO, REFERENCE SPECIFIC WELL(S) AND EXPLAIN:
9)	ARE GUARD POSTS OR PROTECTIVE CASINGS DAMAGED? ☐ YES ☐ NO
ŕ	IF YES, REFERENCE SPECIFIC WELL(S) AND EXPLAIN:
	· · · · · · · · · · · · · · · · · · ·
10)	ARE THE WELL LOCKS OPERABLE?

IF NO, REFERENCE SPECIFIC WELL(S) AND EX	PLAIN	
ARE THERE GAPS OR CRACKS IN THE SURFAC	E PADS/SEA	LS?□ YES
IF YES, REFERENCE SPECIFIC WELL(S) AND EX	(PLAIN:	
PERIMETER FENCE INS	PECTION	
<u> </u>	12011171	
ANY SIGNS OF UNAUTHORIZED ENTRY?	☐ YES	□ NO
ARE ANY FENCE POSTS DAMAGED?	☐ YES	□ NO
DOES FENCE APPEAR IN GOOD CONDITION?	☐ YES	□ NO
ARE ANY SIGNS MISSING?	☐ YES	□ NO
ARE THE SIGNS READABLE?	☐ YES	□ NO
UPON ARRIVAL, WERE THE GATES LOCKED?	☐ YES	□ NO
MENTS:		
	ARE ID NUMBERS CLEARLY VISIBLE ON WELL IF NO, REFERENCE SPECIFIC WELL(S) AND EX ARE THERE GAPS OR CRACKS IN THE SURFACE NO IF YES, REFERENCE SPECIFIC WELL(S) AND EX PERIMETER FENCE INS ANY SIGNS OF UNAUTHORIZED ENTRY? ARE ANY FENCE POSTS DAMAGED? DOES FENCE APPEAR IN GOOD CONDITION? ARE ANY SIGNS MISSING? ARE THE SIGNS READABLE?	ARE ID NUMBERS CLEARLY VISIBLE ON WELL CASING? IF NO, REFERENCE SPECIFIC WELL(S) AND EXPLAIN: ARE THERE GAPS OR CRACKS IN THE SURFACE PADS/SEA NO IF YES, REFERENCE SPECIFIC WELL(S) AND EXPLAIN: PERIMETER FENCE INSPECTION ANY SIGNS OF UNAUTHORIZED ENTRY? ARE ANY FENCE POSTS DAMAGED? DOES FENCE APPEAR IN GOOD CONDITION? ARE ANY SIGNS MISSING? ARE THE SIGNS READABLE? UPON ARRIVAL, WERE THE GATES LOCKED? YES

COVER SYSTEM INSPECTION

12 THEKE AIN	. DL1121110, 00B	SIDENCE, OR EROSION EVIDENT?	
AREA I	☐ YES	□ NO	
AREA II	☐ YES	□ NO	•
AREA III	☐ YES	□ NO	
AREA IV	YES	□ NO	
IF YES, NOTE	AREA NUMBER A	AND EXPLAIN:	
ARE THERE A	NY TREES OR SH	RUBS GROWING IN THE COVER SYS	STEM?
AREA I	☐ YES	□ NO	
AREA II	☐ YES	□ №	
AREA III	☐ YES	□ NO	
AREA IV	☐ YES	□ NO	
IF YES, NOTE	AREA AND EXPL	AIN:	
	i	· · · · · · · · · · · · · · · · · · ·	
COVER SYST	EM SUCH THAT	OWTH HEIGHT IMPEDE INSPECTI EVIDENCE OF SUBSIDENCE OR	
COVER SYST	EM SUCH THAT		
COVER SYST DIFFICULT TO AREA I	EM SUCH THAT DETECT?	EVIDENCE OF SUBSIDENCE OR	
COVER SYST DIFFICULT TO AREA I AREA II	EM SUCH THAT DETECT? YES	EVIDENCE OF SUBSIDENCE OR	
	EM SUCH THAT DETECT? VES VES	EVIDENCE OF SUBSIDENCE OR NO NO	

ARE THERE A	any signs of stre	SSED VEC	GETATION OR NO VEGETATION?
AREA I	☐ YES	□ NO	
AREA II	☐ YES	П ио	
AREA III	☐ YES	□ NO	
AREA IV	☐ YES	□ NO	
IF YES, NOTE	AREA AND EXPLA	IN:	
		<u>.</u>	
ARE THERE A	NY SIGNS OF BURE	ROWING A	NIMALS IN THE COVER SYSTEM?
AREA I	☐ YES	□ NO	
AREA II	☐ YES	□ NO	
AREA III	☐ YES	□ NO	
AREA IV	☐ YES	П мо	
IF YES, NOTE	AREA AND EXPLAI	N:	
		· · · · · · · · · · · · · · · · · · ·	
ARE THERE PHYSICAL AC		ISTURBAI	NCES FROM VEHICLES OR OTHER
AREA I	☐ YES	□ NO	
AREA II	. Tyes	□ NO	
AREA III	☐ YES	□ NO	
AREA IV	☐ YES	□ NO	
IF YES, NOTE	AREA AND EXPLAI	N:	
IS THERE AN	Y PRECIPITATION P	ONDING (ON THE COVER SYSTEM?

	AREA II	☐ YES		NO			
	AREA III	☐ YES		NO			•
	AREA IV	☐ YES		NO			
	IF YES, NOTE	AREA AND EXPL	AIN: _				
					· .		
	ST	ORMWATER MA	NAGI	EMENT SYS	TEM INSI	PECTIO	<u>N</u>
In	termittent Stream						
26)	ARE THERE A	NY OBSTRUCTIO	NS TO	FLOW?		YES	□ NO
	IF YES, EXPLA	IN:					
					<u> </u>		·
							
27)		EVIDENCE OF					
		STRUCTURE OR					AT COULD
		OF THE LANDFA	RM PI	LOT COVER	SYSTEMS	;?	
	☐ YES ☐	•					
	IF YES, EXPLA	IN:		·			
				· · · · · · · · · · · · · · · · · · ·			——————————————————————————————————————

Culve	erts ·		
28)	ARE THE INVERTS FREE OF DEBRIS?	☐ YES	□ NO
	IF NO, EXPLAIN:		
		·	
29)	IS THERE ANY EVIDENCE OF EROSION OR DETERIOR	ATION?	
	☐ YES ☐ NO		
	IF YES, EXPLAIN:		
	M 135, 5, 2 5 1 1 1		
•			
Grass	Waterways and Diversion Channels		
	COULD RENDER THE STRUCTURE OR CHANNEL INE COULD DAMAGE ANY OF THE LANDFARM PLOT COV YES NO IF YES, EXPLAIN:		
31)	IS THERE EXCESSIVE SILTATION?	☐ YES	□ NO
	IF YES, EXPLAIN:		
		grand .	
32)	IS THE VEGETATION IN THE CHANNELS ADEQUATE?	L YES	⊔ ио
	IF NO, EXPLAIN:		
·			

	<u> 1</u>	BENCHMA	RK INS	PECTI	<u>ON</u>	
	VEYED BENC			O PREF	PARE THE	SURVEY
VISIBLE?		☐ YES		NO		
ACCESSIBLE	?	☐ YES		NO		
CLEARLY LA	ABELED?	☐ YES		NO		
UNDISTURB	ED?	☐ YES		NO		
IF NO, EXPLA	AIN:					
	ONUMENTS W TED ZONE M ABELED AND	NONITORIN UNDISTUR	NG PRO BED?			
CLEARLY LA			NIO			
CLEARLY LA AREA I			•			<u>.</u>
CLEARLY LA			NO			
CLEARLY LA AREA I		ES 🗀	•			
INSATIRAT		UNDISTUR		OGRAM	VISIBLE,	ACC

ACTION ITEMS RE-INSPECTION NOTES

INSPECTION FORM INSTRUCTIONS AND INSPECTION PROCEDURES

- 1. Complete General Information section. Please note if this is a scheduled inspection or not.
- 2. Complete 18) in Perimeter Fence Inspection section.

Refer to Drawings 1 through 10 in Post-Closure Plan to complete the following:

3. Inspect each of the four (4) cover areas successively. The inspector shall walk the perimeter of each area and across the cover from a selected point on the cover perimeter (inspector's discretion) to a perimeter point on the opposite side of the cover. Carefully inspect areas where the intermittent stream overlaps with the cover system transition. The inspector may traverse the cover system more than once if deemed necessary. Complete the Cover System Inspection section for each area.

Note: All monitoring wells, benchmarks, run-on and run-off control systems, and perimeter fencing encountered during the cover system inspection may also be inspected.

Complete the appropriate sections of the Inspection Form for these structures.

4. Inspect the culverts and rip rap in the intermittent stream channel and all grass waterways (as shown on Drawings). Based on observations made pursuant to instructions 3 and 4, complete the Stormwater Management System Inspection section.

Complete the inspection of all monitoring wells, benchmarks, run-on and run-off control systems, and perimeter fencing that was not encountered or inspected during 3 and 4 above. This includes all of the above listed structures not located on the LTF (e.g., monitoring wells located in the adjacent Agricultural Land etc.).

ATTACHMENT C

REQUIRED SCOPE OF WORK FOR A RCRA FACILITY INVESTIGATION

CITGO Lemont Refinery

1978030004

RCRA LOG NO. B-162

Attachment C Scope of Work for a RCRA Facility Investigation

I. PURPOSE

The purpose of the RFI is to determine the nature and extent of releases of hazardous waste or hazardous constituents, if any, from SWMUs located at CITGO and to gather data necessary to develop and implement a Corrective Measures Program (CMP). Specifically, the information gathered during the RFI will be used to help determine the need, scope and design of any corrective or interim actions, including the corrective measures program.

II. SCOPE OF WORK

The Scope of Work for the RFI is to evaluate whether a release has occurred, and to what extent, from the two groups of SWMUs listed in Section IV of the Permit. The scope for the Group 1 and Group 2 SWMUs is divided into two phases -- Phases I and II.

- 1. The purpose of Phase I is to provide information on the characteristics and integrity of each unit and conduct field activities, as necessary, to determine if various SWMUs at that facility have released, are currently releasing, or have the potential to release hazardous waste and/or hazardous constituents to the soil and/or surface water.
- 2. Phase II of the RFI will be required if the Illinois EPA's BOL determines from the data obtained in Phase I that for any SWMU (1) a release has occurred to the soil, groundwater, and/or surface water, or (2) a release is occurring to the soil, groundwater, and/or surface water. The purpose of Phase II is to define the nature and extent of releases to any affected media including soil, groundwater, and/or surface water.
- 3. Supplemental investigations may be required if the Illinois EPA's BOL determines from the data obtained in Phase I or Phase II that the nature and extent of hazardous wastes or hazardous constituents has not been adequately characterized in any environmental media including soil, groundwater, or surface water and sediments.

Each phase of the investigation is divided into three subparts. The first subpart deals with the development of a RFI Workplan by the Permittee. The second subpart is the implementation of the RFI. The final subpart covers the submission of reports of activities and results of the RFI.

III. RFI WORKPLANS

CITGO shall prepare detailed workplans that address each phase of the RFI which are reviewed and approved by the Illinois EPA prior to conducting that phase of the RFI. Separate plans will be prepared for the Group 1 and Group 2 SWMUs. The workplan for each phase of the RFI must, at a minimum, contain the information identified in III.A-III.I below. The information in the workplan must be presented in a manner which is similar to the format set forth in these sections. Information provided in each Phase of the RFI may be incorporated into the workplan for the subsequent Phase by reference. Information already submitted in the Part B permit application may also be incorporated by reference into the workplans when appropriate.

The following sections describe what is required in the RFI Workplans for Phase I and Phase II investigations. These phases can be combined into one workplan provided that the requirements of each phase are met.

A. INTRODUCTION (required for all workplans)

A general discussion of the contents and goals of each workplan must be provided as an introductory portion of the workplan. This introduction should also discuss, in general, the facility and the SWMUs being investigated.

B. ADMINISTRATIVE OUTLINE

CITGO shall submit as part of the workplan for each phase of the RFI a general outline defining the RFI objectives, technical approach, and scheduling of tasks during that phase of the RFI. CITGO shall prepare a Project Management Plan (PMP) as part of each Phase Workplan which will include a discussion of the technical approach, schedules, budget, and personnel. The Project Management Plan must also include a description of the qualifications of personnel performing or directing the RFI, including contractor personnel. This plan shall also document the overall management approach to the current Phase of the RFI. The PMP from previous phases can be incorporated by reference into the current workplan provided that any changes or additions to the existing PMP are detailed in a PMP addendum contained within the workplan.

C. RFI APPROACH

Each workplan must describe the investigative approach for the phase and group of SWMUs being investigated under the workplan. The information required includes:

- The parameters and analytical methods to be used to establish the presence or absence of contamination and define the nature and extent of known releases. These must include, but are not limited to, specific hazardous constituents of wastes known or suspected to have been managed by the SWMUs as identified and determined by the unit characterization information presented in the workplan.
- 2. The basis for selecting the parameters and methods in (1) above.
- 3. The methodology for choosing sampling locations, depths, and numbers of samples.
- 4. The methodology for investigating the hydrostatigraphic units at site, and the locations and depths for each monitor well, as appropriate.
- 5. The sample collection procedures for each parameter or constituent to be analyzed for each environmental media (soil, sediments, surface water, and groundwater). The following should be considered in developing these procedures:
 - a. Sample collection methods and equipment should follow guidance in Test Methods for Evaluating Solid Wastes, Physical/Chemical Methods, Third Edition (SW-846) including Final Update 1 and any promulgated updates, where appropriate.
 - b. Field sampling methods not included in SW-846 must be approved by IEPA before the are used in the RFI. This includes methods such as drilling, borings, etc. When available, standards procedures, as defined by USEPA, IEPA, or ASTM, should be followed.
 - c. Soil and sediment samples collected for volatile organics analysis require specialized sampling and handling procedures, as specified in the Illinois EPA's volatile organic compound (VOC) sampling procedure (Attachment 7). Unless extenuating circumstances dictate otherwise, soil samples collected for volatile organic analysis should not be mixed, composited, or

otherwise aerated. If extenuating circumstances prevail, then procedures must be made to minimize (1) the time the sample is exposed to the air; (2) aeration of the sample; and (3) agitation of the sample.

- d. If a drill rig or other piece of equipment is necessary to collect soil samples:
 - (1) The procedures specified in ASTM Method D-1586 (Split Spoon Sampling) or D-1587 (Shelby Tube Sampling) must be used in collecting the samples;
 - (2) Soil samples should be collected continuously at specified locations to provide information regarding the shallow geology of the area where the investigation is being conducted.
- e. Soil and sediments encountered in an area where VOC contamination is a concern should be field-screened for VOCs. However, the actual samples collected for analysis at the laboratory should not be field-screened.
- f. The procedures which will be used to decontaminate the sampling equipment after each sample is collected should also be described.
 Decontamination procedures should be carried out in accordance with SW-846.
- g. The actual material placed in the container for future analysis should be obtained from any visually contaminated portion of the sample, when present.
- 6. The sample handling procedures which will be used to store, preserve and transport the collected soil or water samples to the laboratory, including chain-of-custody procedures and preservative techniques. These procedures should be carried out in accordance with the guidance in SW-846, Third Edition, including Final Update 1 and any promulgated updates.
- 7. The analytical procedures which will be used to prepare the samples for analysis and to analyze them. In general, such procedures should be carried out in accordance with those set forth in SW-846, Third Edition including Final Update 1 and any promulgated updates, as appropriate. The actual portion of the sample to be analyzed should be obtained from visually contaminated material if any is present. The procedures specified must be sufficient to analyze for all the parameters identified in the workplan. The estimated quantitation limits and/or

practical quantitation limits to be achieved should also be identified. Again, these limits should meet the requirements set forth in SW-846. It must be noted that it is especially important to achieve low detection limits if the goal of the sampling/analysis effort is to demonstrate that little or no contamination exists in a given area. To demonstrate a parameter is not present in a sample, the PQL achieved must be at least as low as that specified in SW-846, where practical. Low detection limits may not be as necessary when collecting samples in contaminated areas.

- 8. The procedures which will be used to describe and characterize the soils in and around the subject SWMUs down to the sampling depth but not below the water table, including the following:
 - a. Unified Soil Classification;
 - b. Soil profile; and
 - c. Elevation of water table.
- 9. Documentation that sampling and analysis of groundwater monitoring wells will be carried out in accordance with the Quality Assurance Project Plan as required in III.G below. The plan shall provide information on the design and installation of all groundwater monitoring wells. The designs shall be in accordance with the latest version of the Technical Enforcement Guidance Document (TEGD), where appropriate, and the latest version of the Illinois EPA's BOL design criteria. At a minimum:
 - a. The groundwater monitoring wells must consist of monitoring wells installed in the uppermost aquifer and in each underlying aquifer (e.g., sand units) which is hydraulically interconnected, where appropriate or necessary to characterize the release;
 - b. At least one background monitoring well in each appropriate aquifer shall be installed hydraulically upgradient (i.e., in the direction of increasing static head) from the limit of the SWMU, except to the extent that SWMUs in close proximity can be investigated with the same background well system. The number, locations, and depths must be sufficient to yield groundwater samples that are (1) representative of background quality in the uppermost aquifer and units hydraulically interconnected beneath the facility and (2) not affected by SWMUs or other contamination sources at the subject facility; and

- c. Monitoring wells in each appropriate aquifer shall be installed hydraulically downgradient (i.e., in the direction of decreasing static head) at the limit of the SWMU or SWMU group. Their number, locations and depths must ensure that they allow for detection of releases of hazardous waste or hazardous constituents from the SWMU(s).
- 10. The procedures and criteria for evaluating analytical results to establish the presence or absence of any plume of contamination and to define the boundaries of the plume of contamination. The release criteria shall be defined in this portion of the plan.

D. SITE-SPECIFIC SAMPLING PLANS

The Permittee shall prepare detailed site-specific sampling plans to be submitted as part of the work for each phase of the RFI which address all field activities needed to obtain site-specific data. The plans must contain: a statement of sampling objectives, specifications of equipment, analyses of interest, sample types, sample locations and schedules for sampling. The plans must describe in detail how the RFI will be implemented.

Site-Specific sampling and analysis plans should contain the following information for each SWMU or SWMU group being investigated:

- 1. Goals and Objectives of Effort A discussion of the goals and objectives of the sampling/analysis effort should be included in the plan for the SWMU. This will have an impact on the overall plan, as the sampling/analysis effort required to demonstrate that an area is clean is very different than that required to determine the horizontal and vertical extent of contamination.
- 2. Parameters and Analytical Procedures A list of proposed parameters and analytical methods along with a discussion justifying their selection for the SWMU should be included in the plan. The proposed parameters should include those hazardous constituents which may be present based upon a knowledge of the wastes managed at the unit. This list should include degradation products. Additional parameters for analysis may be required by the Illinois EPA, depending on its review of the wastes and other materials managed at the facility.
- 3. <u>Sample Locations</u> A scaled map should be provided in the plan showing the location where the samples are to be collected.

- 4. <u>Sampling Depth</u> As appropriate, the plan should identify the depth from which each sample is to be collected.
- 5. <u>Sample Collection Procedures</u> The procedures which will be used to collect the samples must be described in the workplan.
- 6. Any additional items regarding the sampling/analysis at a specific SWMU.

E. <u>INFORMATION REQUIRED SPECIFICALLY IN THE RFI PHASE I</u> WORKPLANS

The following information must be provided as part of the RFI Phase I Workplans.

1. General Facility Information

The following information must be provided (to the extent known) in the Phase I RFI Workplan regarding the facility overall:

- a. A description of the facility, including the nature of its business, both past and present. This description should identify (1) the size and location of the facility, (2) the raw materials used and products manufactured at the facility and (3) the Standard Industrial Code which describes the type of activities carried out at the facility;
- b. Identification of past and present owners;
- c. A discussion of the facility's past and present operations, including solid and hazardous waste generation, storage, treatment and disposal activities;
- d. A brief discussion of the SWMUs addressed under the workplan;
- e. A description of all significant surface features (ponds, streams, depressions, etc.) and wells within 1,500 feet of the facility;
- f. A description of all land usage within 1,500 feet of the facility boundary;
- g. Identification of all human populations and environmental systems susceptible to contaminant exposure from releases from the SWMUs within a distance of at least 1,500 feet of the facility;

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- h. Approximate dates or periods of past spills or releases, identification of material spilled, amount spilled, location, and a description of the response actions, including any inspection reports or technical reports generated as a result of the spill or release.
- i. A current topographic map(s) showing a distance of at least 1,500 feet around the facility and other information described below, and at a scale of one inch equal to not more than 200 feet. Contours shall be shown on the map, with the contour interval being sufficient to clearly show the pattern of surface water flow. If such a map is not available, the workplan shall describe the method for generating the map for inclusion in the Group 1 Phase I/II report, as required to support the RFI. The map shall clearly show the following:
 - (1) Map scale, North arrow, date, and location of facility with respect to Township, Range and Section;
 - (2) Topography and surface drainage depicting all waterways, wetlands, 100-year floodplain, drainage patterns, and surface water areas as related to the SWMUs and the surrounding areas;
 - (3) Property lines, with the owners of all adjacent property clearly indicated;
 - (4) Surrounding land use;
 - (5) Locations and boundaries of (1) all solid waste, including hazardous waste, management units, both past and present, (2) spill areas and (3) other suspected areas of contamination;
 - (6) All injection and withdrawal wells, and
 - (7) All buildings, tanks, piles, utilities, paved areas, easements, rights-of-way, and other features including all known past and present product and waste underground tanks or piping, as available and applicable to potential releases from the SWMUs.

The map(s) shall be of sufficient detail and accuracy to locate and report all current and future RFI work performed at the site. The base map(s) shall be submitted in the Group 1 Phase I/II report and modified in subsequent reports and workplans as appropriate.

2. <u>Unit Characterization</u>

Phase I Workplans must contain the following information, to the extent known, for each SWMU included in the Group being investigated:

- a. Location of unit/area;
- b. The horizontal and vertical boundaries of each unit/area;
- c. Details regarding the construction, operation and structural integrity of each unit/area;
- d. A description of all materials managed and/or disposed at each SWMU including, but not limited to, solid waste, hazardous wastes, and hazardous constituents to the extent they are known or suspected over the life of the facility including
 - (1) Type of waste or hazardous constituents placed in the units, including source, hazardous classification, quantity and chemical composition;
 - (2) Physical and chemical characteristics, including physical form, physical description, general chemical class, cohesiveness of the waste;
- e. The history of the utilization of each SWMU and the surrounding areas, including the period of operation and age of the unit;
- f. Methods used to close the unit, if applicable;
- g. A description of the existing degree and extent of contamination at each unit area.
- h. Identification of additional information which must be gathered regarding 2.a through 2.g above.

3. Soil Sampling/Analysis Plan

The Phase I Workplans must provide for a determination of the presence or absence of releases of hazardous waste and hazardous constituents into the soil around and under, where appropriate, each SWMU being investigated within the group where soil is identified in Condition IV.B.1 as the environmental media of concern. The plan shall follow the requirements listed in III.C and III.D.

4. Surface Water and Sediment Sampling and Analysis Plan

Phase I Workplans must provide for a determination of the presence or absence of releases of hazardous wastes and hazardous constituents into all surface waters or their sediments potentially affected by the facility. The SWMUs requiring surface water and sediment investigations are identified in Condition IV.B.1. The plan should meet the requirements of III.C and III.D and must also include, but is not limited to:

- a. A description and characterization of all potentially affected surface waters, as it is available, including locations, areas, depths, inflows and outflows, volumes of water, seasonal fluctuations, flooding tendencies, drainage patterns, on-site and off-site affected populations and activities.
- b. Descriptions and characterization of sediments associated with all surface waters, as it is available, including deposition areas, thickness profiles, and physical and chemical parameters;

5. <u>Hydrogeologic and Hydrologic Description</u>

The Group 1 Phase I/II Workplan and any other workplans for investigating groundwater must provide descriptions of the hydrogeology and hydrology setting at the facility.

The information which must be provided regarding the hydrogeology and hydrology at the facility includes:

- a. Information, as it is available, for the facility overall, regarding:
 - (1) The regional geologic and hydrogeologic characteristics in the vicinity of the facility, including stratigraphy, hydrogeologic flow and the areas of recharge and discharge.
 - (2) Any topographic or geomorphic features that might influence the groundwater flow system;
 - (3) The hydrogeologic properties of all of the hydrogeologic units found at the site down to the first bedrock aquitard, including: hydraulic conductivity and porosity, texture, uniformity and lithology; and interpretation of hydraulic interconnections between saturated zones,

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and zones of significant fracturing or channeling in the unconsolidated and consolidated deposits;

- (4) Using the facility map as a base, isopach and structural contour maps, and at least two (2) geologic cross sections showing the extent (depth, thickness, lateral extent) of all hydrogeologic units within the facility boundary, down to the first bedrock aquitard, identifying: all units in the unconsolidated and consolidated deposits; zones of higher permeability or lower permeability that might direct or restrict the flow of contaminants; perched aquifers; and the first saturated zone that may have a potential for migration of contaminants;
- (5) The water level or fluid pressure monitoring, including: water level contour maps and vertical gradient sections, well or piezometer hydrographs and interpretation of the flow system, interpretation of any changes in hydraulic gradients, and seasonal fluctuation; and
- (6) Any man-made influences that may affect the hydrogeology of the site, identifying local water supply and production wells and other man-made hydraulic structures within 1500 feet of the facility boundary.
- b. Additional hydrogeologic and hydrologic information may be gathered during the groundwater investigations at individual SWMUs.
- c. A detailed discussion of all previous groundwater monitoring efforts. This discussion must include: (1) scaled maps showing the location of all wells used to collect the monitoring data; (2) construction details of the wells used to collect the monitoring data; (3) a summary of the results of all previous groundwater monitoring efforts; and (4) a detailed evaluation of the collected data

6. Potential Receptors

The Group 1 Phase I/II workplan must contain data describing the human populations and environmental systems within a radius of 1,500 feet of the facility boundary that may be affected by releases from SWMUs must be collected and submitted. The following characteristics shall be identified.

a. Local uses and possible future uses of groundwater:

- (1) Type of use (e.g., municipal or residential drinking water source, industrial, etc.); and
- (2) Location of groundwater users, including wells and discharge areas.
- b. Local uses and possible future uses of surface waters draining the facility:
 - 1. Domestic and municipal;
 - 2. Recreational;
 - 3. Agricultural;
 - 4. Industrial; and
 - 5. Environmental.
- c. Human use of, or access to, the facility and adjacent lands, including, but not limited to:
 - 1. Recreation;
 - 2. Agriculture; and
 - 3. Residential.

7. Integrity Inspection

The Group 2 RFI Phase I Workplan must provide for an evaluation of the structural integrity of the concrete-asphalt surface of the drum staging areas (SWMUs 1 and 20) and the heat exchanger bundle cleaning pads (SWMUs 10 and 25A-C). These surfaces shall be inspected by an independent registered professional engineer for cracks/joints which penetrate through the concrete/asphalt. The workplan must define the standards and procedures that will be followed when conducting the inspections. The standards and recommendations of professional/technical entities such as the American Concrete Institute, the Portland Cement Association, the American Society of Testing and Materials, the American Society of Civil Engineers, etc., which relate to the ability of concrete/asphalt to contain liquids should be considered. The results of this inspection shall be (1) submitted in the form of a report, (2)

included in the Group 2 RFI Phase I report, and (3) certified in accordance with 35 Ill. Adm. Code 702.126 by the engineer. The reports must include (1) the results of the inspection, (2) scaled drawings showing the location of all cracks and construction joints observed during the investigation, (3) conclusions reached regarding any cracks or construction joints observed in the area of concern, (4) justification for the conclusions reached (e.g., information must be provided which indicates that any construction joints in the areas of concern are indeed watertight), and (5) photographs to support the conclusions reached and recommendations for correction action to prevent releases from the SWMU, as appropriate.

If joints, cracks or other defects are found in the base of any SWMU during the inspection required above which would potentially allow hazardous waste or hazardous constituents to migrate through them, then the Phase I Workplan must provide for the collection of soil samples beneath them to determine if hazardous waste or hazardous constituents have been released to the underlying soil.

- a. Samples should be collected from at least one location along each joint or crack that provides a potential for hazardous waste or hazardous constituents to migrate to underlying soil. Such locations shall be biased to stained areas or low-lying areas where spills would tend to accumulate.
- b. Samples should be collected from 0" 6" below the subgrade/natural soil interface.
- c. Samples must be collected and analyzed in accordance with the procedures set forth in the sampling and Analysis Plan below.

F. INFORMATION REQUIRED SPECIFICALLY IN THE RFI PHASE II WORKPLANS

1. Soil Investigation

A Phase II Soil Sampling and Analysis plan, if necessary, must describe procedures to determine the nature and extent of hazardous waste and/or hazardous constituents released to the soil. This plan shall address and/or include, in addition to the plans specified in III.C and III.D:

- a. A description of what is known about the horizontal and vertical extent of contamination;
- b. A description of relevant contaminant and environmental chemical properties within the affected source area and plume, including solubility, specification absorption, leachability, exchange capacity biodegradability, hydrolysis, photolysis, oxidation and other factors that might affect contaminant migration and transformation (if known);
- c. Specific contaminant concentrations, if known;
- d. The horizontal and vertical velocity and direction of contaminant movement (if known);
- e. An extrapolation of future contaminant movement (if known); and
- f. The methods and criteria to be used to define the boundaries of the plume(s) of contamination.

2. Sediment and Surface Water Sampling and Analysis Plan

A Phase II RFI sampling and analysis plan to characterize the contamination of surface waters and sediments shall include, at a minimum:

- a. A description of the horizontal and vertical extent of any plumes and the extent of contamination in the underlying sediments (if known);
- b. Specific contaminant concentrations (if known);
- c. The horizontal and vertical direction and velocity of contaminant movement (if known);
- d. An evaluation of the physical, biological and chemical factors influencing contaminant movement (if known);
- e. An extrapolation of future contaminant movement (if known);
- f. The criteria used to define the boundaries of the plume; and
- g. The sampling conditions required under III.C and III.D.

3. <u>Hydrogeologic and Geologic Investigation Plan</u> The Phase II hydrogeologic and geologic investigation plan must provide descriptions of groundwater monitoring systems which will provide adequate data on the detection, nature, extent and rate, and concentration of any release from the SWMU to the groundwater at the facility.

The information which must be provided regarding the investigation of hydrogeology and hydrology at each SWMU includes:

- a. Information for the individual SWMU or SWMU group, as it is available, regarding:
 - (1) The regional geologic and hydrogeologic characteristics in the vicinity of the facility, including stratigraphy, hydrogeologic flow and the areas of recharge and discharge.
 - (2) Any topographic or geomorphic features that might influence the groundwater flow system;
 - (3) The hydrogeologic properties of all of the hydrogeologic units found at the site down to the first bedrock aquitard, including: hydraulic conductivity and porosity, texture, uniformity and lithology; and interpretation of hydraulic interconnections between saturated zones, and zones of significant fracturing or channeling in the unconsolidated and consolidated deposits;
 - (4) The water level or fluid pressure monitoring, including: water level contour maps and vertical gradient sections, well or piezometer hydrographs and interpretation of the flow system, interpretation of any changes in hydraulic gradients, and seasonal fluctuation; and
 - (5) Any man-made influences that may affect the hydrogeology of the site, identifying local water supply and production wells and other man-made hydraulic structures near the SWMU.
- b. Procedures for obtaining information identified in III.F.3.a above which was not obtained during preparation of the workplan, as required to characterize the release at the SWMU.
- c. A description of the extent of contamination in groundwater associated with a release from the SWMU, including:

- (1) A description of the known horizontal and vertical extent of the contamination;
- (2) Specific contaminant concentrations, if known;
- (3) The horizontal and vertical velocity and direction of contaminant movement, if known; and
- (4) An extrapolation of future contaminant movement.
- d. A sampling plan which follows III.C and III.D.

G. DATA COLLECTION QUALITY ASSURANCE

The Permittee shall prepare a plan which describes the procedures which will be used to carry out and monitor all sampling and analysis efforts to ensure that all information and data collected are technically sound, statistically valid and properly documented. Such a plan, referred to as a Quality Assurance Project Plan, must be developed using a format in which the fourteen items listed below are discussed in detail:

- 1. Project Description
- 2. Project Organization and Responsibility
- 3. Quality Assurance Objectives for Data Measurements
- 4. Sampling Procedures
- 5. Sample Custody
- 6. Calibration Procedures and Frequency
- 7. Analytical Procedures
- 8. Data Reduction, Validation and Reporting
- 9. Internal Quality Control Checks

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- 10. Performance and System Audits
- 11. Preventative Maintenance
- 12. Specific Routine Procedures Used to Assess Data Precision, Accuracy and Completeness
- 13. Corrective Action
- 14. Quality Assurance Reports to Management

Of special concern in the development of a QAPP are (1) the use of trip blanks, field blanks and laboratory blanks and (2) calibration and verification of the laboratory procedures and equipment used to analyze the samples. All procedures used in this RFI must meet the requirements of <u>Test Methods for Evaluating Solid Wastes</u>, Third Edition (SW-846), including Final Update 1 and any promulgated updates. As such, the quality assurance/quality control procedures carried out during the RFI must meet the requirements set forth in SW-846. The QAPP shall be developed as part of the Group 1 Phase I/II RFI Workplan and can be incorporated into subsequent workplans by reference. Addendums must be made as needed for the subsequent investigations.

H. DATA MANAGEMENT PLAN

The Permittee shall develop and initiate a Data Management Plan to document and track investigation data and results. This Plan shall identify and set up data documentation materials and procedures, project file requirements, and project-related progress reporting procedures and documents. The Plan shall also provide the format to be used to present the raw data and conclusions of the investigation(s). This plan shall be submitted with the Group 1 Phase I/II Workplan. The Data Management Plan can be incorporated by reference in subsequent workplans and changes shall be made as necessary through addendums to the original plan.

I. HEALTH AND SAFETY PLAN

Under the provisions of 29 CFR 1910 (54 FR 9,295, March 6, 1989), cleanup operations must meet the applicable requirements of OSHA's Hazardous Waste Operations and Emergency Response standard. These requirements include hazard communication, medical surveillance, health and safety programs, air monitoring,

decontamination and training. General site workers engaged in activities that expose or potentially expose them to hazardous substances must receive a minimum of 40 hours of safety and health training off site plus a minimum of three days of actual field experience under the direct supervision of a trained experienced supervisor. Managers and supervisors at the cleanup site must have at least an additional eight hours of specialized training on managing hazardous waste operations. These requirements must be met during each phase of the RFI. A detailed Health and Safety Plan (HSP) demonstrating that his requirement is met must be contained in the workplan for each phase of the RFI. The HSP from previous phases can be incorporated by reference into the current workplan provided that any changes or additions to the existing HSP are detailed in an addendum contained within the workplan.

IV. IMPLEMENTATION OF RFI

The Permittee shall conduct those investigations necessary to characterize the site, and to determine the nature, rate and extent of migration, and concentrations of hazardous waste and hazardous constituents, if any, released from the SWMUs into the surface water and sediments, groundwater, and soil. The investigations must be of adequate technical content to support the development and evaluation of a corrective measures program, if one is deemed necessary by the Illinois EPA's BOL.

The investigation activities shall follow the plans and procedures set forth in the Workplan(s) and the RFI schedule. Any actual or anticipated deviations from the Workplan(s) or the RFI schedule shall be reported no later than the time of submission of the next quarterly report required by Section V subsequent to the determination of need or actual deviation from the Workplan.

V. SUBMISSION OF REPORTS AND RESULTS OF RFI ACTIVITIES

The Permittee must prepare and submit quarterly progress reports which contain at a minimum:

- 1. An estimate of the percentage of the investigation completed;
- 2. Summary of activities completed during the reporting period;
- 3. Summaries of all actual or proposed changes to the Workplan or its implementation;

- 4. Summaries of all actual or potential problems encountered during the reporting period;
- 5. Proposal for correcting any problems;
- 6. Projected work for the next reporting period; and
- 7. Other information or data as requested in writing by the Illinois EPA's BOL.

The overall workplans and reports which must be submitted to the Illinois EPA for review and approval in accordance with the schedule set forth in the following table:

Facility Action

Submission of Group 1 RFI Phase I/II Workplan

Completion of Group 1 RFI Phase I/II investigation and submission of report

Submission of RFI Phase II Workplans

Completion of RFI Phase II investigation and submission of Phase II Report

Submission of Group 2 RFI Phase I Workplan

Due Date

Within 90 days after effective date of the

Permit

To be specified in the Group 1

Phase I/II Workplan

Within 90 days after notification of the need

of Phase II by Illinois EPA's BOL

To be specified in the Phase II workplan

Within 90 days after the final Group 1 Phase

II RFI report is submitted

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ATTACHMENT D

CORRECTIVE MEASURES PROGRAM REQUIREMENTS

CITGO Lemont Refinery

1978030004

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Attachment D Corrective Measures Program Requirements

1.0 Introduction

In accordance with Section 3004 of RCRA and 35 IAC 724.201, CITGO must institute such corrective action necessary to protect human health and the environment from all releases of hazardous wastes, or hazardous constituents, listed in Appendix H of 35 Ill. Adm. Code Part 721, from any Solid Waste Management Unit (SWMU) at its facility. This is accomplished by:

- 1. Conducting a RCRA Facility Investigation (RFI) to determine whether releases of hazardous wastes and hazardous constituents have occurred from any Solid Waste Management Unit (SWMU) at the subject facility, and, if so, the nature and extent of the release; and
- 2. Based on the results of the RFI, developing and implementing a Corrective Measures Program which describes the necessary corrective actions which will be taken. The required corrective actions shall be those actions necessary to protect human health and the environment from all releases of hazardous wastes, or hazardous constituents, listed in Appendix H of 35 Ill. Adm. Code Part 721, from any SWMUs above site-specific cleanup objectives.

The purpose of this document is to describe the steps in developing and implementing the Corrective Measures Program (CMP). To allow for a logical and orderly progression in developing and implementing necessary corrective action at SWMUs, the Corrective Measures Program should be carried out in five phases.

- 1. Phase I should consist of (1) development of final cleanup objectives, (2) discussion of those SWMUs requiring corrective measures and (3) a preliminary evaluation of the corrective action alternatives available for each SWMU requiring corrective action.
- 2. Phase II should consist of development of a conceptual design of the corrective action chosen for each SWMU including remedial system(s) and/or institutional controls.
- 3. Phase III should consist of development and submission of the final design plans for the corrective action, including operation/maintenance plans and plans for the actual installation of the desired correction action.
- 4. Phase IV is the actual construction/installation of the selected corrective measure.

5. Phase V CMP is operation, maintenance, and monitoring of the selected corrective action to ensure it is properly protecting human health and the environment.

Workplans, reports, etc. will have to be developed as part of the efforts associated with each phase. All such documents will be subject to Illinois EPA review and approval. Details associated with each phase and the development of workplans, reports, etc. required for each phase is provided below.

2.0 Phase I of the CMP

In the initial phase of the Corrective Measures Program, the Permittee should (1) develop cleanup objectives for the SWMUs being investigated, and then (2) identify those SWMUs requiring corrective action. If it should be determined that a specific SWMU, or group of SWMUs, require corrective action, then the Permittee should identify, in general, types of remedial technologies or institutional controls which may be instituted to address and/or stabilize residual contamination, and identify the goals of the corrective measures. All of these efforts should be documented in the form of a Phase I Corrective Measures Report which includes the following:

- 1. <u>Proposed Final Soil Clean-up Objectives</u>. Final soil cleanup objectives will determine the need for and extent of soil remediation (soil corrective measures) at each SWMU investigated.
 - a. The procedures utilized to develop the final soil cleanup objectives must take into consideration, as appropriate:
 - i. The volume and physical and chemical characteristics of the contaminants of concern;
 - ii. The effectiveness and reliability of containment, confinement and collection systems and structures in preventing contaminant migration;
 - iii. The hydrologic characteristics of the unit and the surrounding area, including the topography of the land around the unit;
 - iv. The patterns of precipitation in the region;
 - v. The existing quality of surface soils, including other sources and their cumulative impacts on surface soils;

- vi. The potential for contaminant migration and impact to the underlying groundwater;
- vii. The land use patterns around the facility;
- viii. The potential for health risks caused by human exposure to the waste constituents; and
- ix. The potential for damage to domestic animals, wildlife, food chains, crops, vegetation, and physical structures caused by exposure to waste constituents.
- b. The Permittee and the Illinois EPA should have a meeting prior to the time that the Permittee begins developing these objectives. The goal of this meeting will be to provide the Permittee with guidance regarding the procedure which should be followed in developing and proposing these final cleanup levels.
- c. The Illinois EPA will establish final cleanup levels if none are proposed by the Permittee.
- d. The USEPA draft guidance document entitled <u>Soil Screening Guidance</u> and the IEPA document entitled <u>Tiered Approach to Cleanup Objectives</u> may be used in the development of these values as they relate to the protection of human health.
- e. Final Illinois EPA action taken on the development of and establishment of these final soil cleanup levels will be subject to the appeal provisions of Section 39(a) of the Illinois Environmental Protection Act.
- f. For certain SWMUs, it may not be appropriate to establish final soil cleanup levels. This will be the case for those SWMUs where the selected corrective action is capping of the area followed by long-term monitoring of groundwater.
- 2. <u>Final Groundwater Corrective Measures Objectives</u>. Final corrective measures or cleanup groundwater objectives will determine the need for and extent of groundwater remediation (groundwater corrective measures). The procedures used in the development of these objectives must be in general accordance with the procedures described above for final soil cleanup objectives and must also meet the requirements set forth in 35 IAC 620.
 - a. The Permittee and the Illinois EPA should have a meeting prior to the time that the Permittee begins developing these objectives. The goal of this meeting will be to provide the Permittee with guidance regarding the procedure which should be followed in developing and proposing these final groundwater cleanup objectives;

- b. The Illinois EPA will establish final cleanup levels if none are proposed by the Permittee.
- c. Final Illinois EPA action taken on the development of an establishment of these final objectives will be subject to the appeal provisions of Section 39(a) of the Illinois Environmental Protection Act.
- 3. <u>Evaluation of Need for Corrective Action</u> The need for corrective action at each SWMU should be evaluated, based upon a comparison of the proposed clean-up objectives to the results of the RFI.
- 4. <u>Potential Corrective Measures</u> The report should contain a general discussion of the possible corrective measures which may be taken at SWMUs where it is determined that some type of corrective measure is necessary. More detailed information of such measures should be provided if the selected corrective measure has an impact on the development of the clean-up objectives. Also, there must be a discussion of whether the various measures will actually remove the contamination from the environmental media of concern or whether it is some type of institutional control to minimize the potential for future releases from the SWMU. Typically, some type of long-term monitoring is required for corrective measures which employ institutional control.
- 5. <u>Schedule for the Corrective Measures Program</u> The schedule for each Phase of the CMP and the submittals shall be included.
- 6. Ecological Assessment An ecological assessment may be required as part of the Phase I CMP if ecological receptors are identified that would be impacted by the release from the SWMU and if the proposed corrective measures do not address the exposure pathway. The objective of the analysis would be to determine if there will be any adverse impact on the ecology resulting from the proposed cleanup objectives. Ecological assessments may also be required if institutional controls (such as capping, etc.) are the selected corrective measures if the site has ecological receptors. This assessment should be developed in accordance with USEPA guidance. A review of the ecological receptors and the exposure pathways should be included in Phase I of the CMP for each SWMU or SWMU group.

3.0 Phase II of the CMP

Phase II of the CMP includes selection of the corrective measure to be taken and developing a basis for completing the final design of the measure. This effort should be documented in a Conceptual Design Report which describes the proposed corrective measure for each SWMU and provides a conceptual design for these measures. The main criteria for Illinois EPA review is

whether the proposed corrective measures are able to achieve the final cleanup objectives established by the Permittee and the Illinois EPA in Phase I of the CMP and/or provide the institutional controls to prevent the migration of contaminants from the SWMU of concern necessary. Based upon a review of the Conceptual Design Report, the Illinois EPA may approve the corrective measures, require revisions to the proposed corrective measures, or require that a totally new corrective measures proposal be submitted to the Illinois EPA.

The Conceptual Design Report should contain the following sections:

- 1. <u>Introduction/Purpose</u>. The report should include an introductory section which contains: (1) general background information regarding the project; (2) the purpose and goals of the submittal; and (3) the scope of the project.
- 2. <u>Existing Site Conditions</u>. The report should contain a summary of the RFI activities conducted for each of the SWMUs of concern and the results of Phase I of the CMP for each SWMU. RFI investigation analytical results should be provided in tabular form, and maps depicting both the horizontal and vertical extent of contamination at the site should be provided.
- 3. Evaluation for Potential Future Migration. Based on the existing site conditions, a conceptual model of the site should be developed and presented in this report. The potential for additional future migration of contamination for each of the SWMUs of concern must then be evaluated, especially those SWMUs which have been determined to have released hazardous waste/hazardous constituents to the groundwater. It may be helpful to develop conceptual models for contaminant migration. Of special concern in this evaluation are (1) the physical properties of the contaminants (solubility, volatility, mobility, etc.) and (2) existing site conditions (types of soil present, location of contamination, hydrology, geology, etc.).
- 4. <u>Corrective Measures Objectives</u>. The report should discuss the general objectives of the proposed corrective measures to be constructed/installed for each SWMU at the subject facility, and the ability of the proposed corrective measures to achieve the established Corrective Measures cleanup objectives.
- 5. <u>Identification of Options Available</u>. The report should contain a discussion of the various options available to achieve the corrective measures objectives for each SWMU. This discussion should identify: (1) a general overview of each option available, including how the option will achieve the stated objective; (2) the advantages associated with each option; (3) the disadvantages associated with each option and (4) an estimate of the cost associated with choosing each option as the corrective measure.

- 6. <u>Description of Selected Corrective Measure</u>. The report should contain a qualitative discussion of the corrective measure chosen, along with the rationale which was used to select this measure from all those identified initially. This discussion should include documentation that the selected correction measure will be effective.
- 7. <u>Identification of Design Criteria</u>. The report should identify what information must be available to design the selected corrective measure.
- 8. Review of Available Information. The report should contain an evaluation of the existing information to ensure that sufficient information is available to complete the design of the selected corrective measure. If insufficient information is available, then the report should contain procedures for collecting the required information. The level of detail required for this additional data collection should be similar to that provided in RFI workplans.
- 9. <u>Procedures for Completing the Design</u>. The report should contain a description of the procedures which will be followed to complete the design of the corrective measure. This should include as appropriate:
 - a. Identification of the references and established guidance which will be used in designing the selected corrective measure. Justification for the selection of this procedure should also be provided.
 - b. A description of the procedures which will be used to complete the design of the corrective measure.
 - c. Identification of assumptions to be used in the design, and the impact these assumptions have on the overall corrective measure;
 - d. Significant data to be used in the design effort;
 - e. Identification and discussion of the major equations to be used in the design effort (including a reference to the source of the equations);
 - f. Sample calculations to be used in the design effort;
 - g. Conceptual process/schematic diagrams;
 - h. A site plan showing a preliminary layout of the selected corrective measure;

- i. Tables giving preliminary mass balances;
- j. Site safety and security provisions.

The information presented herein will form the continuing technical basis for the detailed design of the system and the preparation of construction plans and specifications.

- 10. <u>Identification of Required Permits</u>. The report should identify and describe any necessary permits associated with the selected corrective measure, as well as the procedures which will be used to obtain these permits.
- 11. <u>Long-lead Procurement Considerations</u>. The report should identify any elements/components of the selected corrective measure which will require a large amount of time to obtain/install. The following issues should also be discussed: (1) the reason why it will take a large amount of time to obtain/install the item; (2) the length of time necessary for procurement and (3) recognized sources of such items.
- 12. <u>Project Management</u>. The report should contain information regarding the tasks and personnel which will be involved in completing the design of the selected corrective measure. A schedule for completing the design should also be provided.

4.0 Phase III of the CMP

Once the Illinois EPA approves the Conceptual Design Report, the facility should complete the design of the approved corrective measure (Phase II of the CMP). Upon final completion of the design, the Final Design Report, consisting of final plans, specifications, construction workplan, etc. must be submitted to the Illinois EPA for review and approval. Typically, the Illinois EPA requires that these documents be submitted to the Illinois EPA within 120 days after the Conceptual Design Report has been approved. The final design report of the CMP must be submitted to the Illinois EPA in the form of a Class II permit modification in accordance with 35 Ill. Adm. Code Part 703. Should implementation of the corrective measures include construction/installation of additional structures which would meet the definition of RCRA regulated units, the Illinois EPA may notify the Permittee that the submittal will be reviewed as a Class III permit modification in accordance with 35 Ill. Adm. Code Part 703. In any event, as the submittal is either a Class II or Class III modification to the facility permit, the Illinois EPA response will be handled in accordance with the procedures for Class II and Class III modifications as outlined in 35 Ill. Adm. Code Parts 703 and 705. Several documents must be submitted to the Illinois EPA as part of Phase III of the CMP. The following text describes the expected contents of the various documents which should be developed and submitted to the

Illinois EPA as part of Phase III of the CMP.

- 1. Final Design Report and Construction Workplan. The Final Design Report and Construction Workplan must contain the detailed plans, specifications and drawings needed to construct the corrective measure. In addition, this document must contain (1) calculations, data etc. in support of the final design; and (2) a detailed description of the overall management strategy, construction quality assurance procedures and schedule for constructing the corrective measure. It must be noted that the approved Conceptual Design Report forms the basis for this final report. The information which should be provided in this document includes:
 - a. <u>Introduction/Purpose</u>. This portion of the document should (1) provide background information regarding the project, (2) describe the purpose and goals of the project, and (3) describe the scope of the project.
 - b. <u>Detailed Plans of the Design System</u>, including the following:
 - 1. Plan views;
 - 2. Section and supplementary views which, together with the specifications and general layouts, facilitate construction of the designed system;
 - 3. Dimensions and relative elevations of structures;
 - 4. Location and outline form of the equipment;
 - 5. Ground elevations; and
 - 6. Descriptive notations, as necessary, for clarity.
 - c. <u>Technical Specifications</u>. Complete technical specifications for the construction of the system. The specifications accompanying construction drawings should include, but are not limited to, the following:
 - 1. All construction information, not shown in the drawings, which is necessary to inform the contractor in detail as to the required quality of materials, workmanship, and fabrication of the corrective measure;
 - 2. The type, size, strength, operating characteristics and rating of the equipment;
 - 3. The complete requirements for all mechanical and electrical equipment, including machinery, valves, piping and jointing of pipe;

- 4. Electrical apparatus, wiring and meters;
- 5. Construction materials;
- 6. Chemicals, when used;
- 7. Miscellaneous appurtenances;
- 8. Instruction for testing materials and equipment as necessary; and
- 9. Availability of site background information (such as soil boring, etc.).
- d. <u>Project Management</u>. A description of the construction management approach, including the levels of authority and responsibility, lines of communication and qualifications of key personnel who will direct corrective measures construction/installation must be provided in the workplan.
- e. <u>Construction Quality Assurance/Quality Control.</u> The workplan must contain a construction quality assurance/quality control plan describing the procedures which will be followed to ensure the corrective measure is constructed/installed in accordance with the approved plans and specifications.
- f. Schedule. The workplan must contain a schedule for completion of all major activities associated with construction/installation of the selected corrective measures. All major points of the construction/installation should be highlighted, with a graphical representation of the project schedule included.
- g. <u>Waste Management Practices</u>. This portion of the document should identify the wastes anticipated to be generated during the construction/installation of the corrective measures, and provide a description of the procedures for appropriate characterization and management of these wastes.
- h. Required Permits. This portion of the report should contain copies of permit applications submitted to other Bureaus of the Illinois EPA for the selected corrective measure. If it is determined that no permit is required for construction/installation and implementation of the corrective measures, rationale and justification must be provided to support this contention.
- 2. Operation and Maintenance Plan. An Operation and Maintenance Plan must be developed and submitted as part of Phase III of the CMP. This plan should outline the

procedures for performing operations, long term maintenance, and monitoring of the corrective measure.

- a. <u>Introduction and Purpose</u>. This portion of the document should provide a brief description of the facility operations, scope of the corrective measures project, and summary of the project objectives.
- b. <u>System Description</u>. This portion of the document should provide a description of the corrective measure and significant equipment, including manufacturer's specifications. This portion of the plan should also include a narrative of how the selected system equipment is capable of complying with the final engineered design of the corrective measure.
- c. <u>Operation and Maintenance Procedures</u>. This portion of the document should provide a description of the normal operation and maintenance procedures for the corrective measures system, including:
 - a. Description of tasks for operation;
 - b. Description of tasks for maintenance;
 - c. Description of prescribed treatment or operation conditions; and
 - d. Schedule showing the frequency of each operation and maintenance task.
- d. <u>Inspection Schedule</u>. This portion of the document should provide a description of the procedures for inspection of the corrective measures system, including problems to look for during the inspection procedure, specific inspection items, and frequency of the inspections.
- e. <u>Waste Management Practices</u>. This portion of the document should provide a description of the wastes generated by operation of the corrective measures, and the appropriate procedures for proper characterization and management of these wastes.
- f. <u>Contingency Procedures</u>. This portion of the document should provide a description of the procedures which will address the following items:
 - 1. System breakdowns and operational problems including a list of redundant and emergency backup equipment and procedures;

- 2. Alternative procedures (i.e., stabilization) which are to be implemented in the event that the corrective measure suffers complete failure. The alternative procedures must be able to prevent release or threatened releases of hazardous wastes/hazardous constituents which may endanger human health and the environment, or exceed cleanup standards.
- 3. Notification of facility and regulatory personnel in the event of a breakdown in the corrective measures, including written notification identifying what occurred, what response action is being taken and any potential impacts on human health and the environment.

5.0 Phase IV the CMP

Once the reports required by Phase III above are approved by the Illinois EPA, construction/installation of the approved corrective measure must commence. During this period, quarterly reports should be submitted which contain the following information:

- 1. Summary of activities completed during the reporting period;
- 2. An estimate of the percentage of the work completed;
- 3. Summaries of all actual or proposed changes to the approved plans and specifications or their implementation;
- 4. Summaries of all actual or potential problems encountered during the reporting period;
- 5. Proposal for correcting any problems; and
- 6. Projected work for the next reporting period.

Upon completion of construction/installation of the approved corrective measure, a Construction Report must be submitted to the Illinois EPA documenting that these efforts were carried out in accordance with the Illinois EPA approved plans and specifications. This report should contain a thorough description of the efforts that went into constructing/installing the corrective measure and demonstrate that the procedures in the Illinois EPA-approved Final Design Report were followed during this effort. Such a report should be formatted in a logical and orderly manner and contain the following information:

- 1. An introduction discussing the background of the project and the purpose and scope of the corrective measure described in the report.
- 2. Identification of the plans, technical specifications and drawings which were used in constructing/installing the corrective measure. These specifications and drawings should have been approved by the Illinois EPA during Phase III.
- 3. Identification of any variations from the Illinois EPA approved plans, technical specifications and drawings used in construction/installing the corrective measure.

 Justification regarding the need to vary from the approved plans and specifications must also be provided.
- 4. A description of the procedures used to construct/install the corrective measure, including the procedures used for quality assurance and quality control.
- 5. As-built drawings, including identification of any variations from the approved plans, technical specifications and drawings.
- 6. A summary of all test results from the construction/installation effort, including quality assurance/quality control testing.
- 7. Actual test results, including quality assurance/quality control test results. These results should be located in an attachment/appendix and be well organized.
- 8. Identification of any test results which did not meet the specified value and a description of the action taken in response to this failure, including re-testing efforts.
- 9. Photographs documenting the various phases of construction.
- 10. A detailed discussion of how the construction/installation effort met the requirements of the approved Final Design Report.
- 11. A certification by an independent qualified, registered professional engineer and by an authorized representative of the owner/operator (the authorized representative must meet the requirements of 35 IAC 702.126). The wording for this certification must also meet the requirements of 35 IAC 702.126.

6.0 Phase V of the CMP

Once the corrective measure has been constructed/installed, it must be operated, maintained and monitored in accordance with the approved operations and maintenance plans. During this period, quarterly reports must be submitted to the Illinois EPA documenting the results of these efforts. These reports should contain the following information:

- 1. <u>Introduction</u>. This portion of the document should provide a brief description of the facility operations, scope of the corrective measures project, and summary of the project objectives.
- 2. <u>System Description</u>. This portion of the document should provide a description of the corrective measures constructed/installed at the site, and identify significant equipment.
- 3. <u>Monitoring Results</u>. This portion of the document should provide a description of the monitoring and inspection procedures to be performed on the corrective measures. A summary of the monitoring results for the corrective measures, including copies of any laboratory analyses which document system effectiveness, provide a description of the monitoring procedures and inspections performed, and include a summary of the monitoring results for the corrective measure. Copies of all laboratory analytical results which document system monitoring must be provided.
- 4. <u>Effectiveness Determination</u>. This portion of the document should provide calculations and other relevant documentation that demonstrates the effectiveness of the selected corrective measure in remediating/stabilizing contamination to the extent anticipated by the corrective measures final design. Copies of relevant analytical data should be provided to substantiate this determination.
- 5. System Effectiveness Recommendation. Based upon the results of the effectiveness determination required under 4. above, this portion of the report should provide a recommendation on continuance of the corrective measure. If the corrective measure is not performing in accordance with the final design, a recommendation on revisions or expansion of the system should be provided. Additionally, based upon the monitoring results, a schedule for achieving the cleanup objectives should be included with each evaluation.

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ATTACHMENT E

CONSTRUCTION CERTIFICATION FORM AND INSTRUCTIONS

CITGO Lemont Refinery

1978030004

RCRA LOG NO. B-162

CONSTRUCTION CERTIFICATION

This statement is to be completed by both the responsible officer and the registered professional engineer upon completion of construction in accordance with 35 IAC Section 702.126. Submit one copy of the certification with original signatures and two additional copies (four additional copies for UIC wells). Forward these certification statements and any information required by the permit to the following address:

Illinois Environmental Protection Agency Bureau of Land - #33 Permit Section 1021 North Grand Avenue East Post Office Box 19276 Springfield, Illinois 62794-9276

FACILITY NAME:	
IEPA SITE CODE:	·
U.S. EPA ID NO.: IL	·
PART B PERMIT LOG #/UIC PERMIT #	#: <u></u>
PERMIT (OR MODIFICATION) ISSUA	NCE DATE:
PERMIT CONDITION NO. REQUIRING	G CERTIFICATION:
contained in the enclosed report. I certify were prepared under my direction or super qualified personnel properly gather and ev person or persons who manage the system information, the information submitted is,	has been constructed in accordance with the specifications that the construction was in accordance with the permit is under penalty of law that this document and all attachments rvision in accordance with a system designed to assure that valuate the information submitted. Based on my inquiry of the , or those persons directly responsible for gathering the to the best of my knowledge and belief, true, accurate, and icant penalties for submitting false information, including the nowing violations.
Signature of Owner/Operator	Name and Title
Signature of Registered P.E.	Name of Registered P.E. and Illinois Registration Number
Date	(P.E. SEAL)

This Agency is authorized to require this information under Illinois Revised Statutes, 1979. Chapter 111 ½, Section 1039. Disclosure of this information is required under that Section. Failure to do so may prevent this form from being processed and could result in your application being denied. This form has been approved by the Forms Management Center.

Mary A. Gade, Director

2200 Churchill Road, Springfield, IL 62794-9

DATE:

February 23, 1996

TO:

Facilities Permitted Under the IEPA RCRA and UIC Programs

FROM:

DLPC Permit Section

SUBJECT:

Certification Documentation for Construction Required by IEPA-Issued Permits

When submitting certification required by a Part B or UIC permit for construction of any newly developed areas or units, please complete the attached certification form. Modifications to the construction of UIC wells should be certified with this form, but the installation of groundwater monitoring wells does not require this certification (unless specifically required by the permit). This will help to ensure that the submittal reaches its proper destination and that the certification will meet the regulatory requirements. Sending the Field Operations Section (F.O.S.) copy directly to the Field Office is acceptable as long as all copies have a completed copy of the enclosed form attached and you advise the Permit Section, in writing, that a copy has been sent to F.O.S.

A documentation report and as-built drawings (sealed and signed by an Illinois Professional Engineer) must be included with this certification. Information necessary to document the construction of the unit or area and to support the certification must be contained within the report. This report should include a thorough description of all construction data and drawings and should be formatted in a logical and orderly manner. The construction documentation report must contain at least the following items:

- 1. An introduction and summary which describes the scope and purpose of the project;
- 2. A description of all construction activities, including quality assurance and quality control;
- 3. As-built drawings of the area or unit and a description of any deviations from the plans and specifications approved in the permit;
- 4. A description of the test methods used and justification for any deviations from standard test methods;
- 5. A summary of test results, identification of any samples which did not meet the specifications and the corrective action and retesting which was undertaken in response to any failing test results;
- 6. Any necessary information associated with construction of the area or unit to document that construction was in accordance with the plans and specifications approved by the permit;
- 7. Information specifically required by the permit; and
- 8. Any available photographs of the area or unit.

If you have any questions, please contact a member of the DLPC Permit Section at 217/782-6762.

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Enclosure

ATTACHMENT F CLOSURE CERTIFICATION FORM

CITGO Lemont Refinery

1978030004

RCRA LOG NO. B-162

This statement is to be completed by both the responsible officer and by the registered professional engineer upon completion of closure. Submit one copy of the certification with original signatures and three additional copies.

Closure Certification Statement

The hazardous waste management units at the facility described in this document have been closed in accordance with the specifications in the Agency <u>approved</u> closure plan. I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

USEPA ID Number	Facility Name
Signature of Owner/Operator	Name and Title
Signature of Registered P.E.	Name of Registered P.E. and Illinois Registration Number
Date	

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ATTACHMENT G IDENTIFICATION OF THE APPROVED PERMIT APPLICATION

CITGO Lemont Refinery

1978030004

RCRA LOG NO. B-162

ATTACHMENT G IDENTIFICATION OF THE APPROVED PERMIT APPLICATION

<u>Title</u>		Latest Revision Date
SECT	TION A RCRA PART A APPLICATION [EPA FORM 8700-23 (01-90)]	4-24-97
SECT	TION B FACILITY DESCRIPTION	
B-1	General Description	2-29-96 (Rev. 2)
B-2	Topographic Map	2-29-96 (Rev. 2)
B-3	Location Requirements	5-12-95
B-4	Traffic Information	5-12-95
B-5	Operating Record	5-12-95
SECT	TION C - WASTE CHARACTERISTICS	
C-1	Chemical and Physical Analysis	2-29-96 (Rev. 2)
C-2	Waste Analysis Plan	2-29-96 (Rev. 2)
C-3	Quality Assurance	2-29-96 (Rev. 2)
SECT	TION D PROCESS INFORMATION	
D-1	Containers	N.A.
D-2	Tank Systems	N.A.
D-3	Waste Piles	N.A.

	<u>Title</u>	<u>2</u>	Latest Revision Date
D-4	Surface	Impoundments	12-30-96
D-5	Incinera	ators	N.A.
D-6	Landfill	ls	N.A.
D-7	Land Tr	reatment	5-12-95
	D-7a	Treatment Demonstration	N.A.
	D-7b	Land Treatment Program	8-30-96 (Rev. 4)
	D-7c	Unsaturated Zone Monitoring Plan	8-30-96 (Rev. 4)
	D-7d	Treatment Zone Description	8-30-96 (Rev. 4)
	D-7e	Unit Design, Construction, Operation, Maint	8-30-96 (Rev. 4)
	D-7f	Food Chain Crops	N.A.
	D-7g	Waste Management Plan for Dioxin Wastes	N.A.
	D-7h	Incompatible Wastes	N.A.
SEC	TION E -	GROUNDWATER MONITORING	
E-1	Exempt	tion from Groundwater Protection Requirements	5-12-95
E-2	Interim Status Groundwater Monitoring Data 5-12-95		
E-3	General Hydrogeological Information 5-12-95		
E-4	Topogr	aphic Map Requirements	12-30-96 (Rev. 5)
E-5	Contam	ninant Plume Description	N.A.
E-6	Ground	lwater Monitoring System	12-30-96 (Rev. 5)

	Title		Latest Revision Date
E-7	Detection	on Monitoring Program	12-30-96 (Rev. 5)
E-8	Compli	ance Monitoring Program	N.A.
E-9	Correct	ive Action Program	N.A.
E-10	Correctiv	e Action for SWMUs	12-30-96 (Rev. 5)
SEC	ΓΙΟΝ F -	- PROCEDURES TO PREVENT HAZARDS	
F-1	Security		
	F-1a	Security Procedures and Equipment	8-30-96 (Rev. 4)
	F-1a(1)	24-hour Surveillance System	8-30-96 (Rev. 4)
	F-1a(2)	Barrier and Means to Control Entry	8-30-96 (Rev. 4)
	F-1a(2)	(a) Barrier	8-30-96 (Rev. 4)
	F-1a(2)	(b) Means to Control Entry	8-30-96 (Rev. 4)
	F-1a(3)	Warning Signs	8-30-96 (Rev. 4)
	F-1b	Waiver	8-30-96 (Rev. 4)
F-2	Inspect	ion Schedule	8-30-96 (Rev. 4)
	F-2a	General Inspection Requirements	8-30-96 (Rev. 4)
	F-2b	Specific Process Inspection Requirements	8-30-96 (Rev. 4)
	F-2b(1)	Container Inspection	N.A.
	F-2b(2)	Tank System Inspections	N.A
	F-2b(3)	Waste Pile Liner Inspection	N.A.

	<u>Title</u>	Latest Revision Date
	F-2b(4) Waste Pile Inspection	N.A.
	F-2b(5) Surface Impoundment Inspection	N.A.
	F-2b(6) Incinerator Inspection	N.A.
	F-2b(7) Landfill Inspection	N.A.
	F-2b(8) Land Treatment Facility Inspection	8-30-96 (Rev. 4)
F-3	Waiver or Documentation of Preparedness and Prevention Requirements	
	F-3a Equipment Requirements	
	F-3a(1) Internal Communications	8-30-96 (Rev. 4)
	F-3a(2) External Communications	8-30-96 (Rev. 4)
	F-3a(3) Emergency Equipment	8-30-96 (Rev. 4)
	F-3a(4) Water for Fire Control	8-30-96 (Rev. 4)
	F-3b Aisle Space Requirements	8-30-96 (Rev. 4)
F-4	Preventive Procedures, Structures and Equipment	
	F-4a. Unloading Operations	8-30-96 (Rev. 4)
	F-4b Run-Off	8-30-96 (Rev. 4)
	F-4c Water Supplies	8-30-96 (Rev. 4)
	F-4d Equipment and Power Failure	8-30-96 (Rev. 4)
	F-4e Personnel Protection Equipment	8-30-96 (Rev. 4)
F-5	Prevention of Reaction of Ignitable, Reactive or Incompatible Wastes	8-30-96 (Rev. 4)

	<u>Titl</u>	<u>e</u>	Latest Revision Date
SECT	TION G	CONTINGENCY PLAN	
G-1	Genera	l Information	8-30-96 (Rev. 4)
G-2	Emerge	ency Coordinators	8-30-96 (Rev. 4)
G-3	Implem	nentation	8-30-96 (Rev. 4)
G-4	Emerge	ency Response Procedures	
	G-4a N	Notification to Federal, State, and Local Officials	8-30-96 (Rev. 4)
	G-4b	Identification of Hazardous Materials	8-30-96 (Rev. 4)
	G-4c A	ssessment	8-30-96 (Rev. 4)
	G-4d	Control Procedures	8-30-96 (Rev. 4)
	G-4e Prevention of Recurrence or Spread of Fires, Explosions or Releases		8-30-96 (Rev. 4)
	G-4f Storage and Treatment of Released Material		8-30-96 (Rev. 4)
	G-4g	Incompatible Waste	N.A.
	G-4h	Post Emergency Equipment Maintenance	8-30-96 (Rev. 4)
	G-4i	Container Spills and Leaks	N.A.
	G-4j	Tank System Spills and Leaks	N.A.
	G-4k	Waste Pile Spills and Leakage	N.A.
	G-41	Surface Impoundment Spills and Leakage	N.A.
	G-4m	Incinerator Spills and Leakage	N.A.
	G-4n	Landfill Leakage	N.A.

	<u>Title</u>	Latest Revision Date
G-5	Emergency Equipment	8-30-96 (Rev. 4)
G-6	Coordination Agreement Requirements	8-30-96 (Rev. 4)
G-7	Evacuation Plan	8-30-96 (Rev. 4)
G-8	Required Reports	8-30-96 (Rev. 4)
SEC	TION H PERSONNEL TRAINING	
H-1	Outline of the Training Program	8-30-96 (Rev. 4)
H-2	Implementation of Training Program	8-30-96 (Rev. 4)
SEC	ΓΙΟΝ Ι CLOSURE AND POST-CLOSURE REQUIRE	MENTS
I-1	Closure Plans	2-29-96 (Rev. 2)
SEC	ΓΙΟΝ J OTHER FEDERAL LAWS	10-13-95 (Rev. 1)
SEC	ΓΙΟΝ K PART B CERTIFICATION	·
K-1	Facility Certification	. 8-30-96 (Rev. 4)
K-2	Engineering Certification	8-30-96 (Rev. 4)
K-3 I	Prior Conduct Certification	. 2-27-96
SEC	ΓΙΟΝ L CONTINUING RELEASES AT PERMITTED	FACILITIES
L-1	Solid Waste Management Units	. 5-12-95
	Table L.1: Summary of SWMUs	. 10-13-95 (Rev. 1)
L-2	Releases	. 5-12-95

, -	<u> Citle</u>	Latest Revision Date
SECT	TION M REFERENCES	5-12-95
SECT	ΓΙΟΝ Ν RCRA Checklist	5-1-96
<u>List c</u>	of Appendices	Latest Revision Date
B-1	Legal Description of Property	2-29-96 (Rev. 2)
B-2	ISWS Well Database Listings	2-29-96 (Rev. 2)
C-1	Chemical and Physical Analysi	10-13-95 (Rev. 1)
D-1	Treatment Zone Soil Sampling Data	June 1989
D-2	Perched Water Bearing Zone Water Levels	8-30-96 (Rev. 4)
E-1	Monitoring Well, Piezometer, and Lysimeter Construction Diagrams & Boring Logs	5-12-95
E-2	Groundwater Sampling and Analysis Plan	May 1995
E-3	Tabulation of Interim Status Groundwater Monitoring Data	12-30-96 (Rev. 5)
G-1	List of Position Holders and Phone Numbers	2-15-95
G-2	Communications Flow Chart	2-15-95
G-3	Coordination Agreements	10-13-95 (Rev. 1)
G-4	Emergency Facilities and Equipment	2-15-95
G-5	Evacuation Procedures	2-15-95
H-1	Job Descriptions	10-13-95 (Rev. 1)
H-2	Training Records	No Date

	List of Appendices		Latest Revision Date	
I-1	Closure Plan			
	I-1a	Closure P	erformance Standard	5-12-95
	I-1b	Partial Cl	osure Activities	5-12-95
	I-1c	Maximun	n Waste Inventory	. 8-30-96 (Rev. 4)
	I-1d	or Decont	Removal, Disposal, tamination of Equipment, s, and Soils	. 8-30-96 (Rev. 4)
	I-1d(6)	Closure o	f Land Treatment Facilities	. 8-30-96 (Rev. 4)
	I-1e	Closure o	f Disposal Units	. N.A.
	I-1f	Schedule	for Closure	5-12-95
	I-1g	Extension	as of Closure Time	. N.A.
	I-3 N	otice in De	eed and Certification	5-12-95
	I-4 C	losure Cos	t Estimate (Table 7-1)	. 8-30-96 (Rev. 4)
	I-6 P	ost-Closure	e Cost Estimate (Table 9-1)	. 8-30-96 (Rev. 4)
	Append	dix A		
	S	tormwater	Basin Closure Material Characteristics	May 1993
	Append	dix B		
	S	ite Charact	erization Report (Vol. I of II)	March 1995
	Арр	oendix A	Tables and Figures from the 1994 RCRA Annual Groundwater Monitoring Report	
	App	pendix B	ERM Grid Node/Sample Location Map, Trench Location Map and Trench Cross Sections.	1989
	App	endix C	Soil Boring Logs	November 1994

List of Appendices **Latest Revision Date** Design Calculations: Appendix C - HELP Model5-12-95 - Storm-Water Management and Appendix D Construction Quality Assurance Plan8-30-96 (Rev. 4) Health and Safety PlanApril 1995 Appendix E Closure Cost Estimate Calculations8-30-96 (Rev. 4) Appendix F Closure Certification Statement5-12-95 Appendix G Closure and Post-Closure Inspection Forms8-30-96 (Rev. 4) Appendix A Unsaturated Zone Monitoring Plan8-30-96 (Rev. 4) Appendix B I-3 Financial Assurance Mechanism for Closure Financial Assurance Mechanism for Post Closure Liability Requirements J-1 Correspondence regarding compliance with other Federal laws Various Dates Various Dates L-1 Available Engineering Drawings

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<u>Figures</u>	Latest Revision Date
B-1 Site Location Map	9-13-93
B-2 Facility Map (C139501-E-FIGB-2)	2-29-96 (Rev. 1)
B-3 Well and 100-yr. Flood Plain Location Map (C139501-E-FIGB-3)	4-13-95
B-4 Process Sewers, Storm Sewers, Drainage Features, and Fire Hydrant Location Map (C148702-E-FIGB-4)	10-12-95
B-5 Outside Refinery Piping (190-CE-5)	2-20-96 (Rev. 0)
D-1 Land Treatment Facility Site Map (C139501-D-1)	4-11-95
D-2 Distribution of Soil Series (C148703-D-1)	8-26-96
E-1 Site Location Map (C139501-E-1)	4-24-95
E-2 Monitoring Well Location Map (C139501-E-2)	4-24-95
E-3 Lysimeter Location Map (C139501-E-3)	4-24-95
E-4 Geologic Cross-Section Map (C139501-E-4)	4-24-95
E-5 Geologic Cross-Section A-A' (C139501-E-5)	4-24-95
E-6 Geologic Cross-Section F-F' (C139501-E-6)	4-24-95
E-7 Potentiometric Surface Map - Bedrock Piezometers [5-24-94] (C139501-E-7)	4-24-95
E-8 Potentiometric Surface Map - Bedrock Piezometers [10-31 & 11-1-94] (C139501-E-8)	4-24-95
E-9 Potentiometric Surface Map - Deep Wells [5-24-94] (C139501-E-9)	4-24-95
E-10 Potentiometric Surface Map - Deep Wells [10-31 & 11-1-94] (C139501-E-5)	4-24-95

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<u>Figu</u>	ires	Latest Revision Date
F-1	Refinery Work Request (02)	1-13-95
G-1	Site Location Map (C126402-B1-1)	9-13-93
G-2	Land Treatment Facility Site Map (C139501-D-1)	4-13-95
Figu	ares in the Closure Plan	
2-1	Site Location Map (C139501-2-1)	4-24-95
3-1	Envelope of acceptable gradation for common borrow material (C139501-3-1)	5-11-95
3-2	Cover Cross Section (C139501-3-2)	4-12-95
4-1	Closure Schedule (C139501-4-1)	5-11-95
<u>Dra</u>	wings in the Closure Plan	
1.	Facility Map (C139501-D01)	8-23-96
1A.	Drainage Subareas (C139501-D01)	8-23-96
2.	General Site Plan North (C139501-D02)	3-27-96
3.	General Site Plan South (C139501-D03)	3-27-96
4.	Closure Material Temporary Storage Plan North (C139501-D04)	3-27-96
5.	Closure Material Temporary Storage Plan South (C139501-D-05)	3-27-96
6.	Subbase Grading Plan North (C139501-D06)	3-27-96
7.	Subbase Grading Plan South (C139501-D-07)	3-27-96
8.	Final Grading Plan North (C139501-D08)	8-27-96
9.	Final Grading Plan South (C139501-D-09)	8-27-96

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<u>Figures</u>	Latest Revision Date
10. Stormwater Management Plan (C139501-D10)	8-27-96
11. Details (C139501-D11)	8-27-96
Figures in Post-Closure Plan	
2-1 Site Location Map (C126402-B1-1)	9-13-93
2-2 Site Map (BASEMAP.DW2)	6-8-93
3-1 Soil Core Random Sampling Grid (C148703- FIG2-3)	8-22-96
3-2 Soil Core Random Sampling Grid (C148703- D2-4)	8-22-96
4-1 Schematic of Drilling Procedures for Collection of Soil Samples (C148703-4-1)	8-28-96
5-1 Sample Label (07)	8-7-96
5-2 Soil/Sediment Sampling Log (03)	8-7-96
5-3 Chain of Custody Record (05)	8-7-96
L-1 SWMU Locations (C139501-E-FIGL-1)	5-9-95
Drawings in Appendix L-1	
Fuels Loading Rack (93-0271.03, Sheet 3 of 6)	June 1993
Solvent Loading Rack (93-0271.02, Sheet 5 of 10)	June 1993
Former Service Station (93-0271.02, Sheet 7 of 10)	June 1993
Former Process Blending UST (93-0271.04, Sheet 3 of 5)	June 1993
Drawing Index Plan (2987-190-CD-1)	11-14-94 (Rev.13)

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Drawings in Appendix L-1	Latest Revision Date
#2 A-D "Big Inch"	
Subcontract Index Sheet (2987-190-CD-3)	3-26-69 (Rev. 2)
Contaminated Storm Drain "A" (2987-152-CD-31)	3-26-69 (Rev. 1)
Contaminated Storm Drain Line "B" (2987-152-CD-39)	3-26-69 (Rev. 2)
#7 Interceptor Trench	
Barge Loading Unit 33 (2987-130-CD-107)	5-27-94 (Rev. 6)
Barge Loading Unit 33 (2987-130-CD-109)	5-27-94 (Rev. 8)
#20 Active Drum Storage Area	
Drum/Dumpster Staging Area Unit 859 (859-CD-402)	August 1992
Drum/Dumpster Staging Area Unit 859 (859-FD-401)	August 1992
Drum/Dumpster Staging Area Unit 859 (859-FD-402)	August 1992
Drum/Dumpster Staging Area Unit 859 (859-FD-403)	August 1992
#23 A-D Water & Wastewater Treatment Plant	•
Raw Water & effluent Treating,	
Units 31, 41, 44 (2987-141-KE-100)	5-12-92 (Rev. 19)
Waste Treatment Plant Expansion (144-KD-419)	11-27-91 (Rev. 1)
Waste Treatment Plant Expansion (144-KD-418)	March 1988

ATTACHMENT H SPECIAL CONDITIONS

CITGO Lemont Refinery

1978030004

RCRA LOG NO. B-162

ATTACHMENT H SPECIAL CONDITIONS

A. CONTINGENCY PLAN

The Permittee shall take the following actions anytime (1) there is a failure of the cover system or a component of the cover system or (2) there is an imminent or actual release of hazardous wastes or hazardous constituents from a land treatment area:

- 1. Implement the Contingency Plan and the control procedures in Section G-4d of the Contingency Plan.
- 2. Make a visual inspection of the area and estimate the extent.
- 3. Collect samples of the media down hill from the failure to determine if waste material has been released. In collecting the samples, the permittee shall make every effort to collect samples that are representative of any material that appears to be waste material from any of the treatment units. The permittee shall contact the Illinois EPA's Bureau of Land, Regional Office prior to collecting any samples. An Illinois EPA representative shall specify the locations to be sampled and the number of samples to be collected. At a minimum, the samples shall be analyzed for the following parameters, total petroleum hydrocarbons, oil and grease, total organic carbon, Antimony, Arsenic, Barium, Beryllium, Cadmium, Chromium, Cobalt, Lead, Mercury, Nickel, Selenium, and Vanadium.
- 4. The cover system shall be repaired such that the repaired portion meets the conditions of this permit.
- 5. The cover system shall be repaired such that the repaired portion of the vegetative layer is a minimum of six inches thick and seeded in accordance with the conditions in this permit.
- 6. The repaired area shall be inspected weekly until the vegetation is firmly established.
- 7. Anytime soil is used to repair an area that is at least 100 square feet in size, the soil in the repaired area shall be tested in accordance with the conditions in this permit to verify that the repaired area meets the specifications in Section I of this permit and Condition A.4 above. The first testing location shall occur at a point approximately in the center of the repaired area.

- 8. Within 30 days of the completing the repairs to the cover system, the permittee shall provide a report to the Illinois EPA. The report must include the following information:
 - a. A description of the incident and what caused the failure.
 - b. How the cover system was repaired.
 - c. If the design of the cover system needs to be modified to prevent similar failures in the future. The discussion of the cover system's design must also discuss the design of other portions of the cover system that are similar to the area that failed.
 - d. A scale drawing that shows the location(s) of the cover system that failed and those that are similar to the area(s) that failed.
 - e. All sampling and analytical results collected to document compliance with Conditions H.A.3, H.A.4, H.A.5, and H.A.7.
 - f. The report shall be certified by a qualified Professional Engineer registered in the State of Illinois.
- 9. If an area that has been repaired, fails within two years of the repair (for any reason), the Permittee shall submit a permit modification request to the Illinois EPA to modify the design of the cover system in that area. The modification request shall be submitted within 30 days of the failure.
- 10. All waste material released from the land treatment units shall be managed as a hazardous waste.

B. COMPLIANCE SCHEDULE

- 1. Within 30 days of the effective date of this permit the permittee shall provide the following supplemental information and clarifications to the permit application:
 - a. The annual volume of wastes applied to each of the land treatment areas during their operation; and
 - b. The volume of stormwater basin sludge placed on Area I.

2. Precipitation data used in conjunction with the inspection schedule shall be collected at the CITGO, Lemont Refinery. If necessary, the permittee shall install a rain gage and/or weather station at the facility to collect this information. These devices shall be installed no later than the effective date of this permit.

ECB:WRW:bjh\971062S.WPD

ATTACHMENT I

UNSATURATED ZONE MONITORING PARAMETERS

CITGO Lemont Refinery

1978030004

RCRA LOG NO. B-162

ATTACHMENT I UNSATURATED ZONE MONITORING PARAMETERS

Skinner List Parameters and Analytical Methods. Land Treatment Facility, CITGO Refinery, Lemont, Illinois.

Volatile Organic Compounds (SW-846 8240)

Benzene (5/5)

Carbon disulfide (5/5)

Chlorobenzene (5/5)

Chloroform (5/5)

1,2-Dichloroethane (5/5)

1,4-Dioxane (5/5)

Ethylbenzene (5/5)

Ethylene dibromide (5/5)

Methyl ethyl ketone (5/5)

Styrene (5/5)

Toluene (5/5)

Xylene (5/5)

<u>Metals</u>

(SW-846 7000 Series)

Antimony (250/5)

Arsenic (100/2)

Barium (25000/500)

Beryllium (2500/50)

Cadmium (1000/20)

Chromium (1000/20)

Cobalt (2500/50)

Lead (5000/100)

Mercury (10/0.2)

Nickel (1000/20)

Selenium (100/2)

Vanadium (50000/1000)

Semivolatile Base/Neutral Organics (SW-846 8270)

.

Anthracene (330/10)

Benzo(a)anthracene (330/10)

Benzo(b)fluoranthene (330/10) Benzo(k)fluoranthene (330/10)

Benzo(a)pyrene (330/10)

Bis(2-ethylhexyl)phthalate (330/10)

Butyl benzyl phthalate (330/10)

Chrysene (330/10)

Dibenz(a,h)acridine (330/10)

Dibenz(a,h)anthracene (330/10)

Dichlorobenzenes (330/10)

Diethyl phthalate (330/10)

7,12-Dimethylbenz(a)anthracene (330/10)

Dimethyl phthalate (330/10)

Di(n)butyl phthalate (330/10)

Di(n)octyl phthalate (330/10)

Fluoranthene (330/10)

Indene (330/10)

Methyl chrysene (330/10)

1-Methylnaphthalene (330/10)

Naphthalene (330/10)

Phenanthrene (330/10)

Pyrene (330/10)

Pyridine (330/10)

Quinoline (330/10)

Semivolatile Acid-Extractable Organics

(SW-846 8270)

Benzenethiol (330/10)

Cresols (330/10)

2,4-Dimethylphenol (330/10)

2,4-Dinitrophenol (330/10)

4-Nitrophenol (330/10)

Phenol (330/10)

Values in parentheses: (soil detection limit/water detection limit, parts per billion).

ECB:WRW:bjh\971063S.WPD

ATTACHMENT 2

Responses to Comments on the Draft RCRA POST-CLOSURE PERMIT

for

CITGO, Lemont Refinery

1978030004 Log No. B-162

ATTACHMENT 2A

Responses to Comments on the

Draft RCRA POST-CLOSURE PERMIT CITGO, Lemont Refinery

by

Rob Watson

1978030004 Log No. B-162 1978030004 -- Will County CITGO, Lemont Refinery

Log No: B-162 Admin. Record File

Reviewer: Rob Watson

Date: August 4, 1997

Illinois EPA Responses

to

Specific Comments on the Draft RCRA Permit UNO-VEN (CITGO) Lemont Refinery

The IEPA issued a Draft RCRA Permit to the UNO-VEN refinery on September 26, 1996. The comment period for that permit ended on November 14, 1996. However, UNO-VEN was granted an extension until December 31, 1996 to provide comments on the Draft Permit. UNO-VEN's comments were dated December 23, 1996 and received December 30, 1996. UNO-VEN's comments were also transmitted electronically to the IEPA and are repeated below. The IEPA's response to each comment is provided after each comment.

The comments on the Groundwater Monitoring and Corrective Action Sections of the application were reviewed by Terri Blake Myers and Clayton Bloome respectively. Therefore, the responses to comments on these sections are not included below.

NOTE: CITGO purchased the facility after UNO-VEN submitted comments on the draft permit.

UNO-VEN (CITGO) Comments

Overall Permit

Comment: UNO-VEN should appear in all capital letters rather than as Uno-Ven.

Response: The permit has been changed to refer to CITGO instead of UNO-VEN.

Comment: UNO-VEN requests that the expiration date of the permit be 10 years after the

date of the final permit. Ten years is the maximum length allowed by 35 IAC. Given that the CAMU and other corrective action activities may last ten years, it

is appropriate that the maximum time be designated in the permit.

Response: The length of the permit is ten years.

Comment: UNO-VEN has attached the following exhibits to these comments:

- Exhibit A consists of a description of UNO-VEN's general comments to the corrective action portion of the draft RCRA permit ("RCRA Corrective Action Strategy and RFI Approach for UNO-VEN's SWMUs"). It discusses the overall strategy for corrective action at the UNO-VEN refinery and forms the basis for UNO-VEN's comments to the draft RCRA permit.
- Exhibit B consists of a description of the proposed CAMU and how it will meet each of the seven CAMU criteria as described in 35 IAC Section 724.652 ("Conceptual Approach LTF CAMU;" Discussion Draft).
- Exhibit C consists of the minutes from the December 6, 1996 meeting between UNO-VEN, Unocal, Radian, and the IEPA, at which both the CAMU concept and the corrective action strategy/RFI approach were discussed. This attachment also includes by reference the maps and cross-sections presented at this meeting.
- Exhibit D consists of the work plan for the interim measures to maintain the LTF. UNO-VEN proposes to operate and maintain the LTF in accordance with the work plan while the CAMU designation or closure options are being evaluated.
- Exhibit E consists of UNO-VEN's comments on the Fact Sheet for the Draft RCRA Post-Closure Permit.

Response:

Exhibit A: Comments in Exhibit A will be addressed by Clayton Bloome.

Exhibit B: Comments in Exhibit B pertain to operating the land treatment units as a CAMU. This was not part of the Approved Permit Application or the Draft Permit. Therefore, these comments were not addressed. The ability of the land treatment units to function as a CAMU will be evaluated when the Class 3 permit modification is submitted by UNO-VEN.

Exhibit C: The Agency has noted the minutes of the December 6, 1996 meeting between UNO-VEN, Unocal, Radian, and the IEPA. The comments in the minutes with which the IEPA takes exceptions are noted below.

CITGO: B-162 IEPA Response to Comments

Exhibit D: The Agency has noted the Interim Action Plan in Exhibit D. However, the plan

does not include specifics. The installation and inspection of run-off control devices has been addressed by the addition of several conditions in Section I of

the permit.

Exhibit E: Comments in Exhibit E pertain to the Fact Sheet for the Draft Permit. The Fact

Sheet is not part of the final permit. These comments are noted. However, no

response is necessary.

Exhibit C; UNO-VEN's minutes of 12-6-96 meeting:

Toxicity, Leaching, and Waste Restrictions (page 3)

This paragraph states "... there is no reason to believe that the unit is toxic to either plants or microbes." It also indicates that locations within the treatment areas that have accumulated metals from past applications of wastes "... are not a threat to leaching or plant toxicity currently, ..." The Agency does not fully agree with these statements. While some plants are growing on the treatment areas, the site visits to the areas have also revealed many bare spots on the treatment areas where vegetation does not grow, and a number of dead trees along the banks of the intermittent stream. Also, the Agency does not believe that it is correct to say that there is not a leaching threat from these areas. [This was confirmed by the 2-26-97 Unsaturated Zone Soil Sampling Report. The results of that sampling event show a statistically significant increase of selenium below the treatment zone. Benzene was found in one sample, and carbon disulfide was found in seven of eight samples.]

Additional Data Needs (page 3)

The last paragraph states that "IEPA representatives indicated that no additional investigation data or evaluation of investigation data was required to proceed with implementation of the CAMU concept." This is not correct. We indicated that no additional investigation data or evaluation of investigation data was required to proceed with a permit application for a CAMU. Once the application is reviewed, it may be determined that additional investigation and/or evaluation of data is necessary to implement (begin operation of) the CAMU.

Additional Data Needs (page 4)

The top paragraph indicates that it was tentatively decided that an interim action could be conducted by UNO-VEN at the first SWMU requiring corrective action and the waste used to conduct the plot study. This is not correct. The entire CAMU proposal must be part of a Class 3 permit modification request. Operation (including testing) of a unit is typically only allowed

after the permit is effective. However, there are two possible ways that some testing could be performed prior to issuance of a full RCRA permit: 1) if the proposal includes a treatment demonstration, the IEPA can issue a Treatment Demonstration Permit pursuant to 35 Ill. Adm. Code 703.230; or, the permittee could request a temporary authorization (TA) to perform testing in a study plot under the authority of 35 Ill. Adm. Code 703.280(e). In general, a TA is not issued until the IEPA has performed one (or more) technical reviews of the permit application, and is confident that it can issue a full RCRA permit for the proposed operation.

Removal of SWMUs 41 and 42 (East & West Tank Farms) page 5

The last sentence of is paragraph indicates that SWMUs 41 and 42 would be removed after UNO-VEN has conducted a historical literature review of the areas. The Agency will determine if these areas should be further investigated after the above mentioned historical literature review of the tank farm areas.

Section I: Closure

Comment

I.A

In lieu of immediate closure, UNO-VEN proposes to designate the four land treatment units as a corrective action management unit (CAMU) to be used in accordance with the impending corrective action program at the facility. UNO-VEN believes that through discussions with the IEPA it has been shown (or can be shown) that the four land treatment units performed adequately in the past, do not now threaten human health or the environment, and can be operated in a protective manner in the future, as a CAMU, to treat remediation wastes. UNO-VEN concurs with Unocal's comments that is appropriate to close the units as a land farm. UNO-VEN proposes to add language that will allow the designation of a CAMU and/or the use of a vegetative cover system. Ultimately, UNO-VEN proposes that Section I (as well Section II and III) be removed from this permit and closure and post-closure be addressed by the Class 3 permit modification for the operation and management of the Corrective Action Management Unit.

Response: This permit has been revised to include provisions to postpone the closure of the land treatment units if a permit modification request to operate the units as a CAMU is submitted. If the units are designated as a CAMU, the modified permit will include requirements for submittal of a closure plan for the CAMU. The design requirements for the cover system for the CAMU will depend on the ability of the land treatment units to degrade transform or immobilize the hazardous constituents placed in or on them. These issues will need to be addressed when the closure plan for the CAMU is submitted.

Comment

I.C

The surface impoundment identified as S04 was closed in cooperation with the IEPA in 1986. A letter based on the available data and documentation, which demonstrates that the closure of this unit is sufficient to meet the 35 IAC 724 closure by removal standard, will be submitted after the final permit is issued. This section has been changed in anticipation of that submittal.

Response: The conditions in this section were kept essentially as they were written. Condition I.C.2 was revised to clarify the type of information that is required. The conditions proposed by UNO-VEN did not include a time frame for the submittal. Therefore, they were not included. However, UNO-VEN's proposed condition regarding appeal rights was included.

Comment

I.D

Pursuant to the comment to I.A above, UNO-VEN proposes to allow the four land treatment units to be operated as a CAMU in association with the corrective action program detailed in the comments to Section IV of the permit and/or to use a vegetative cover system for closure of the LTF units. It has or can be shown that the vegetative cap is appropriate for these land treatment units and it is protective of human health and the environment by eliminating possible exposures and enhancing the degradation, immobilization, and transformation of constituents. UNO-VEN concurs with Unocal's conclusion that closure of this unit with a vegetative cap is protective of human health and the environment. Further a vegetative cap is the default closure requirements of the IEPA closure regulations (IAC 725) and U.S. EPA closure/post-closure guidance, as long as the migration of constituents is addressed. UNO-VEN believes that Attachment V sufficiently documents that constituent migration is no concern.

Further, UNO-VEN believes that future operation of these four land treatment units would be protective of human health and the environment by providing onsite treatment of remediation wastes. Site controls and monitoring will ensure that the potential of the facility to pose a risk to human health or the environment is negligible. Language has been added and this section has been reorganized to allow for the vegetative cap and CAMU alternatives.

Response: As previously discussed with both UNO-VEN & Unocal, the permit has been modified such that closure of the land treatment units can be postponed if a permit modification request to operate the units as a CAMU is submitted. In addition, wording in the permit which required a low permeability cap over the units has been removed. As proposed by UNO-VEN, the entire Section I.D of the permit has been deleted. However, the conditions pertaining to groundwater and UZM during the closure period have been moved within Section I.

At this time, the Illinois EPA does not concur with UNO-VEN & Unocal's determination that the land treatment units should be closed with only a vegetative cap over them. However, because UNO-VEN has clearly indicated their strong intentions to operate the land treatment units as a CAMU, the Illinois EPA did not reviewed the portions of the comments that pertain to the design of the final cover system. If UNO-VEN decides not to operate the land treatment area as a CAMU, the RCRA permit requires UNO-VEN to submit a justification for the vegetative cap or propose an alternate closure plan. The Illinois EPA will review the merits of the proposed cover system design when/if this submittal is provided. If UNO-VEN requests to operate the land treatment areas as a CAMU, the request must also include a closure plan for the CAMU. The closure options for the CAMU will be evaluated at that time.

Comment

I.E

In the case where the land treatment units are designated and operated as a CAMU, the specific timing of events set forth in this section would be inappropriate. The section has been modified to appropriately address the CAMU. Ultimately, UNO-VEN proposes to remove Section I and address the closure standards under the Class 3 permit modification required for the operation and management of the CAMU.

Response: UNO-VEN's proposed changes are noted, but are not included in the permit because they refer to a modification that has not yet been made. If the permit is modified to allow for a CAMU, the conditions will be revised as necessary at that time.

New conditions were added to Section I.E; Inspections (now I.D), to address concerns about runoff control. One of UNO-VEN's revisions to Section I.D included a condition that referenced Exhibit D of their comments; an Interim Work Plan. The plan includes run-off control, but lacks specifics about the locations of the run-off control devices and installation dates for them. Therefore, it is not adequate.

On July 3, 1997 CITGO submitted a drawings that identify the design and locations of silt fences around the treatment areas. This latest submittal is adequate to address the run-off concerns in the interim period between the time the post-closure permit is issued and either a cap is placed on the areas or they are operated as a CAMU.

The issue of run-off and how to implement run-off controls from the effective date of the permit to when the units are operated as a CAMU, or construction of a cover system begins has been discussed several times with UNO-VEN.

Comment

I.F

In the case where the land treatment units are designated and operated as a CAMU, the specific timing of events set forth in this section would be inappropriate. The section has been modified to appropriately address the CAMU.

Response: The permit has been modified such that closure of the land treatment units can be postponed if a permit modification request to operate the units as a CAMU is submitted. Condition I.F.1 (now Condition I.D.1) has been revised to identify that the permittee has 3 options with respect to closure of the land treatment units. The permittee can submit:

- a. A Class 3 permit modification request to operate the land treatment units as a CAMU,
- b. Documentation to justify the proposed cover system, or
- c. An alternate closure plan and cover system design.

Date specific due dates have been left out of the revised condition.

Comment

F.4(a-e)

These conditions are not appropriate for the intended closure approach for the land treatment units. Since closure without removal is to be used, documentation requirements for waste removal are not necessary.

Response: The conditions were left in the permit and the wording "if applicable" was added parenthetically. These are standard conditions for the closure of regulated units. Sometimes during closure, it is determined that materials that were to be left in place have to be removed. These conditions identify the requirements if this situation arises.

Comment

F.4(I)

The text of this paragraph was modified for consistency with other parts of the permit and for clarity.

Response: In general, the condition was revised as proposed by UNO-VEN. It was also revised to require that the cross sections identify the depth to which hazardous constituents have migrated below the treatment zone, and the geology at least 10 feet below the lower boundary of the treatment zone. This is necessary because the Closure Documentation Report is one of the last detailed descriptions of the units that will be provided to the Agency. The description of the units should not stop with the lower boundary of the treatment zone as proposed by UNO-VEN. It should include the extent to which hazardous constituents have migrated below the treatment zone, and continue a reasonable distance below that because, depending on the type of cover system, hazardous constituents could continue to migrate in the future.

Section II: Post-Closure

Comment

II.C.8

UNO-VEN believes that, pursuant to the recent presentation and discussion of the LTF data with the Agency, the condition of the four land treatment units is adequate to allow them to be operated as a CAMU and/or closed as land treatment units as opposed to a landfill. Correspondingly, this section has been revised.

Response: The reference to landfills was removed from the condition as requested by UNO-VEN. However, the wording that requires corrective action of the cover system was left essentially as written.

Comment

II.D.3

Since thorough investigation for Modified Skinner List constituents has been performed for the treatment zone and below treatment zone soils of the four land treatment units, it is appropriate to monitor for those that have been detected. However, it is not appropriate or cost effective to continue to perform detection monitoring for those that have been shown not to be present. This section has been modified to include the appropriate monitoring requirements.

Response: In general, the Agency agrees with this approach. However, the 1995 Site Characterization Report showed that other parameters, not on the Skinner List, were also found in the soils. Also, the February 26, 1997 Unsaturated Zone Monitoring Report identified another organic hazardous constituent, not detected in 1995, in the undisturbed soils below the treatment zone. Therefore, Condition II.D.3.b has been revised to include all of the parameters that have been detected in or below the treatment zone.

The comment proposes to only monitor the soils for those parameters that have already been detected. However, the February 26, 1997 Unsaturated Zone Monitoring Report showed that Carbon Disulfide (a Skinner List compound not detected in 1995) was found in 7 of 8 samples taken below the treatment zone. Thus it appears that all of the hazardous constituents present in and/or below the treatment zone may not have been identified. In order to address this concern, Condition II.D.3.c has been added to require analysis of all of the parameters in Attachment I initially and every five years thereafter.

Comments

II.D.9, II.E.1 This section has been revised to include the flexibility of implementing a CAMU.

Response: UNO-VEN's proposed changes are noted, but are not included in the permit because they refer to a modification that has not yet been made. If the permit is modified to allow for a CAMU, the conditions will be revised as necessary at that time.

Comment

II.F.2

This paragraph appears to be redundant with paragraph F.3. Whereas, F.3 is more specific and cites the appropriate Illinois regulations, UNO-VEN proposes to delete the current F.2.

Response: This condition is standard for all land disposal facilities (this includes land treatment). Therefore, no changes were made.

Comment

II.F.4

The language of this paragraph has been modified to be consistent with the rest of the section.

Response: The condition was revised as proposed by UNO-VEN.

Section III: Groundwater Monitoring

These comments were addressed by Terri Blake Myers.

Section IIIa

Comment

UNO-VEN requests that, since the groundwater around and beneath the stormwater basins has been designated a solid waste management unit (SWMU 33), it not be regulated under other portions of the permit (including Section IIIa). Additionally, UNO-VEN is uncertain of the reasoning to designate a GMZ as a SWMU and under which regulatory provision (i.e., RCRA or 35 IAC 620) it would fall under. UNO-VEN suggests that the groundwater monitoring plan specified in this section incorporated into the Group 1 Phase I/II workplan for the SWMU to undergo long-term monitoring as prescribed. The change in designation from a GMZ which is regulated under 35 IAC 620, to a SWMU, would allow risk-based cleanup and monitoring standards (such as TACAO). UNO-VEN requests the opportunity to discuss this issue with the Agency before finalization of the permit.

Response: Section III.a has been deleted from the permit. The GMZ is now identified as SWMU 33 and addressed under the Corrective Action portion of the RCRA Permit.

Section IV: Corrective Action Activities

Comments on this section were addressed by Clayton Bloome.

Section V: Reporting and Notification

Comment

I.F.1

Certification will be submitted to the Agency within 60 days after the completion of the cover system. In the case where the LTF is used as a CAMU in accordance with Section IV of the permit, the permit will be modified so that the cover will be installed after the operational period of the CAMU is complete. Since the schedule for the CAMU implementation is uncertain, a date of October 1, 1997 may not be feasible.

Response: Date specific due dates regarding the cover system have been deleted.

Comment

II.F.4

The due date should refer to a cover rather than a liner.

Response: The condition has been revised to reference the cover.

Comments

III.C.1 and III.I.9

Response: Refer to Terri Myer's response to comments.

Comments

IV, IV.C, IV.D.1

Response: Refer to Clayton Bloome's response to comments

Comment

VI.11

It is assumed that the submittal date refers to 30 days after a written request is

received.

Response: Condition VI.11 has been revised to specify a "written" request.

Comment

VI.14

Section V states that written notification is required to Agency within 15 days of planned physical alterations or additions. No time period is given in

Condition 14 under Section VI.

Comment

VI.15

Comment is similar to the comment for VI.14.

Response: Conditions VI.14, VI.15 (and Section V) have been revised to accurately reflect the requirements in the regulations that pertain to 1) Planned Changes, 2) Anticipated Noncompliance, and 3) Construction Certification Reports for new construction. See 35 IAC 702.152 703.244, 703.247 and 703.270.

Comment

VI.16

Section V states that an application for permit modification is required 90 days prior to transfer date when the permit is to be transferred. No time frame is indicated in Condition 16 under Section VI.

Response: Condition VI.16 has been revised to specify 90 days (See 35 IAC 703.260(b)).

Condition

VI.54(b)

Section V states that this is required within 90 days of discovery of revision, but Condition 54(b) in Section VI gives no time frame.

Response: Condition VI.54(b) [now Condition VI.55] has been revised to make it consistent with the regulations (35 IAC 724.242(c)). Section V has also been revised accordingly.

Comments

Attachment C, Attachment D

Response: Responses to comments on Attachments C & D were prepared by Clayton Bloome.

Comment

Attachment H.A.3 A typographical error was fixed ("priot" to "prior").

Response: This revision has been made to the condition.

Section VI: Standard Conditions

Comment

A paragraph has been inserted at the beginning of this Section on the advise of UNO-VEN's counsel. It is to clarify the applicability of the some of the conditions within this permit section.

Response: The comment has been noted. The conditions in this Section are standard conditions that are part of every permit. The proposed paragraph was not included in the permit.

Comment

15.

The last sentence under Condition 15 and subparagraphs i and ii appear to be artifacts of Condition 14. These conditions were deleted from the Permit.

Response: Conditions 14, 15, 16, and 17 were revised based on a review of the regulations. Condition 15 was added and titled Construction Certification.

Comment

19.c

Written submission shall be provided within 5 working days of the time the Permittee becomes aware of the circumstances specified under Condition 19.a.

Response: This condition is taken verbatim from the referenced regulation 35 Ill. Adm. Code 703.245(b). Within the permit the term "days" refers to calendar days. Therefore, the wording was not revised.

Attachments C & D

Comments on these attachments were addressed by Clayton Bloome

Attachment H

Comment

A.4, 7

In accordance with the comments made to Section I of the permit, these paragraphs were revised to eliminate requirements specific to the low permeability cap only.

Response: These conditions were revised as proposed by UNO-VEN.

Comment

B.1(a-c)

This requirement is redundant of what is contained in Section I.F.4.i,j and II.F.2,3. UNO-VEN requests that these be removed to avoid confusion and conflicts between the different parts of the permit.

Response: The marked-up copy of the permit only proposed to delete Condition B.1.c. Conditions B.1.c & d require the permittee to submit information that pertains to the design and construction of the cover system. These issues will be reviewed if the units are not used as a CAMU. Therefore, Conditions B.1.c & d were deleted. Conditions B.1.a & b require information about the units as they exist today. Therefore, they will remain in the permit. The initial wording in Condition B was also incorporated in Condition I.E.

Comment

C.1

The requirements of this condition appear to overlap with Conditions I.F.4.i and III.K. Further, there does not appear to be information on the submittal requirements in Condition III.I.2 specific to the SW-series wells. UNO-VEN is requesting that the SW-series wells be removed per the comment to Condition III.G.2.

This condition requires Agency approval prior to the first quarterly report; however, reporting requirements of Section III of the permit are semi-annual. Therefore, UNO-VEN proposes that this condition be removed from the permit.

Response: This condition was deleted as proposed by UNO-VEN.

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1978030004 -- Will County CITGO, Lemont Refinery

Log No: B-162 Admin. Record File

Reviewer: Rob Watson

Date: July 29, 1997 (Revised August 4, 1997)

Illinois EPA Responses to CITGO's 2nd Set of Questions & Comments on the Revised RCRA Permit dated June 2, 1997

On May 1, 1997 the Agency faxed revised sections of the RCRA permit to CITGO. On June 2, 1997 CITGO faxed (and e-mailed) IEPA comments on this "final" revision of the RCRA permit. Those comments are repeated below together with the IEPA responses.

The comments on the Groundwater Monitoring and Corrective Action Sections of the application were reviewed by Terri Blake Myers and Clayton Bloome respectively. Therefore, the responses to comments on these sections are not included below.

No.	Cite	Comment/Question & IEPA Response
1	I.D.2	New condition to submit drawings showing locations outside the perimeter where hazardous constituents have been found at <u>or near</u> statistically significant concentrations.
		"Near" is relative and undefined, it is suggested that the condition be changed to require statistically significant concentrations only.
		Response: Condition I.D.2 has been revised to delete the wording "or near". However, the requirement to address certain perimeter sample locations in the next submittal will remain the same. These perimeter sample locations are a concern because they have high concentrations of hazardous constituents. Not all of the concentrations were statistically significant.
2	I.D.5	New condition. Within 14 days of effective date, install run-off control devices, as needed to prevent sediments and/or hazardous waste constituents from reaching the stream.
		See No. 4
		Response: Revise this condition to require installation of the interim run-off controls already proposed by CITGO within 30 days of the effective date.

No.	Cite	Comment/Question & IEPA Response
3	I.D.6	New condition. Within 45 days, submit a scale drawing of the type and locations of run-off control devices that were installed under I.D.5.
		See No.4
		Response: Delete this condition as the information was submitted on 4-18-97 and revised 7-3-97.
4	I.D.7	New Condition. If the IEPA finds the locations of types of run-off controls devices under I.D.5 are not adequate they will specify the placement of additional controls. Will be installed within 14 days of notice.
		A plan for the installation of the interim run-off controls has been submitted to the agency showing the proposed location and types of run-off controls. Instead of submitting the drawings after the fact for scrutiny, it is suggested that the Agency require the submittal of the plan (which has already been submitted) prior to the installation of the controls. Upon concurrence by the Agency the construction will be completed. This approach could be completed more quickly and will not require CITGO to invest resources prior to Agency review.
,		Response: This condition will be deleted since the plan has already been submitted and reviewed.
5	I.D.11.h	This condition requires the submittal of all required soil sampling/analysis efforts as part of the closure certification. The example given is unsaturated zone monitoring data. Unsaturated zone monitoring data will be submitted under regular reports as a condition of the permit.
		Clarification of the data required to be submitted under this condition is requested. Soils testing data associated with the construction of the cap would seem appropriate.
		Response: Condition I.D.11.h (now Condition I.D.9.h) has been revised to require a summary of the unsaturated zone monitoring results and the samples associated with construction of the cover system.
6	I.D.11.i	This condition requires the submittal of a number of cross sections with specific content upon the closure of the unit.

No.	Cite	Comment/Question & IEPA Response
		CITGO has the following suggestions: 1. In the fourth line, there needs to be a comma after "cover system";
		2. That a combination of a plan view drawing and the cross-sections could better represent certain features such as drainage, roads, wells, and treatment units. Showing these features on cross-sections alone may not be practical;
		3. That the condition require constituents "above statically significant concentrations" that have migrated below the treatment zone be shown on the cross sections as a point of clarification of the condition;
		4. That reference to "Drawings 9 and 10" be made more specific.
		Response: 1) A "comma" was added. 2) This condition will remain as written. The purpose of Condition I.D.11.i (now I.D.9.i) was to specify the level of detail in the cross sectional views. Condition I.D.9.j also requires drawings (such as plan views) of the closed units. 3) The sampling data collected to date indicate that three metals (arsenic, beryllium, and selenium) and potentially several organics exist below the treatment zone in statistically significant concentrations. As the closure activities and design of any cover system will depend on the nature and extent of the hazardous constituents in the soil and/or groundwater at the time of closure, it is important that this information is included in the closure certification report. 4) The references to Drawings 9 and 10 now include page numbers and Appendix I-1 of the permit application.
7	I.D.11.j	Requirement to provide drawings to show vertical and horizontal boundaries of the storm water basin sludge where used for subbase.
		It is suggested that this condition be removed. Since the basin sludge will no longer be used for subbase but will instead be treated in the land farm.
		Response: The post-closure plan proposes to use the sludge as a subbase. Therefore, the condition will remain as written for now. If the management of the sludge changes when the land treatment facility is used as a CAMU, the condition can be modified/deleted at that time.
8	I.E.5	New condition. Requires a quarterly report be submitted during the interim period. This requires a summary of all inspections, problems, and corrective actions.

No.	Cite	Comment/Question & IEPA Response
		It is requested that this condition be removed. CITGO will maintain the records in a file for the RCRA field inspector to review during his/her regular visits.
		Response: This condition was deleted per CITGO's request.
9	II.C.6 (see I.3 and I.4 also)	This condition stipulates a groundwater monitoring system. Additionally, it requires compliance with "applicable regulations of 35 IAC 724 Subpart F" in addition to the permit and approved permit application.
		It is requested that the condition be made more specific with regards to Subpart F or that the reference to Subpart F be removed. Conditions within the permit and the permit application are designed to comply with the applicable portions of Subpart F. The condition, as it exits, is vague and could result in confusion later.
		Response: The reference to the "applicable portions of Subpart F" has been deleted per CITGO's request.
10	II.C.7	Similar to II.C.6, it is requested that the reference to "applicable" portions of a regulation be made more specific.
		Response: The reference to the "applicable" portions of a regulation has been deleted per CITGO's request.
11	II.C.8	This section requires inspection and corrective action for a closure cover. It appears that this condition is appropriate for a landfill-type closure and not a soil or vegetative cap over a land farm.
		It is requested that these conditions be re-evaluated. Specifically, that the second paragraph of II.C.8.a be deleted.
		Response: The requirements to maintain the final cover system on the LTAs will remain in the permit. Even a permit that only includes a vegetative cover would include conditions that require the permittee to maintain that final cover system.
12	II.D.3	This condition requires the unsaturated zone monitoring be conducted in the second quarter of each year.
		Because of the timing of the final permit and since samples were collected in December of 1996, it is requested that the monitoring be allowed to take place in the fourth quarter of the year.

No.	Cite	Comment/Question & IEPA Response
		Response: The condition has been revised as requested by CITGO to require the unsaturated zone samples be collected in the fourth quarter and submitted in January with the groundwater sample results.
13	II.D.5	The condition requires that a background value be established for each hazardous constituent on the skinner list.
		Background values have already been calculated for each of the inorganics on the skinner list and are provided in Section I, Appendix B of Appendix I-1 of the approved permit application. No additional field work should be necessary to comply with this condition. Please clarify what additional information is required by the Agency.
		Response: The requirement for the permittee to establish new background concentrations was deleted per CITGO's request. It is not the intent of the Agency to require additional soil sampling and analysis. However, Section 7 of the closure plan in the permit application was not completely clear on how background was established, or what the background values are. Therefore, Condition II.D.8 has been revised to require this information be provided. In the case of the organics, the background value should be the PQL for the compound listed in 35 IAC 724.
14	II.D.9	This condition requires that within 30 days, statistical calculations and background values for each hazardous constituent on the skinner list be submitted for Agency review and approval.
		This information has been provided in the approved application (in Section I). Please clarify what is specifically required to meet this condition, in addition to what has been provided.
		Response: The closure plan in the permit application did not include a detailed description on the statistical methods and calculations that were used. This information was requested but not received from Unocal. Condition II.D.8 has been revised to clarify the type of information required. Also, see the response to comment # 13 above.
15	II.E.1	This condition references a schedule in Attachment B to the permit.
		Attachment B in the permit does not contain a schedule but does contain the inspection form. It is requested that this condition or Attachment B be revised.
-		Response: The condition II.E.1 has been revised to reference the Inspection Form in Attachment B.

No.	Cite	Comment/Question & IEPA Response
16	III.D.2	This condition requires a re-evaluation of background <u>constituents</u> proposed for monitored by the UA-series wells for Agency review and approval. Further the condition states that constituents have been found below the treatment zone.
		It is understood that when a unit moves from interim to permitted status the regulations require background constituents to be reevaluated. However, compiled data has not indicated that constituents, above statistical limits, have migrated below the treatment zone. It is requested that the wording of the condition be revised.
-		Response: Refer to Terri Myer's response to comments.
17	III.K	This condition requires that the information required under III.C.2, III.D.2, and III.G.2, be submitted as a permit modification.
		It is presumed that these will be informational, i.e, Class I, permit modifications. If the information required does not change from existing, does a permit modification still need to be submitted? Please provide clarification.
		Response: Refer to Terri Myer's response to comments.
18	IIIa	Based on a review, it appears that all reference to the GMZ (SWMU 33) has been removed from the permit. Please clarify the status of the GMZ with respect to the permit.
		Response: Refer to Terri Myer's response to comments.
19	H.B.1	This condition requires submittal, within 30 days, of the annual volume of wastes applied to each of the land treatment area.
		It is requested that condition H.B.1 be deleted. The data has been summed by area and by year (but not by area by year) and provided in the approved permit application. It is not clear what benefit would be gained by this effort. The unit has been demonstrated to be in good condition as it exists and has been proved to immobilize and degrade constituents. This information would not provide new data on the units condition and the effort to assemble this data in this format would be significant.
		Response: The application provided the annual <u>weight</u> of wastes applied to each unit. Knowing the <u>volume</u> of wastes applied to each unit is equally important in understanding the operation of the treatment areas and the current condition they are in.

1978030004 -- Will County CITGO, Lemont Refinery Log No: B-162 Admin. Record File

Reviewer: Rob Watson Date: September 12, 1997

Illinois EPA Response to Comments from UNO-VEN dated 12-31-96

On December 31, 1996 (received January 2, 1997) Geraghty & Miller, on behalf of UNO-VEN, provided responses to certain technical review comments in the Agency technical NOD letter dated August 2, 1996. The submittal included revised pages of the RCRA permit application and indicated that they should be inserted into the permit application.

The Draft RCRA Permit issued on September 26, 1996 included conditions that required the permittee to submit the information not provided in their response to the August 2, 1996 Technical NOD. Therefore, it was unclear why Unocal/UNO-VEN submitted the 12-31-96 letter instead of addressing the issues through the comments on the Draft Permit. In a 2-4-97 conference call, Unocal said that the 12-31-96 submittal should be considered comments on the Draft Permit. This was confirmed in a 2-13-97 letter from Unocal.

The technical comments in the 12-31-96 submittal pertained to groundwater monitoring and were addressed by Terri Blake Myers in her April 23, 1997 review notes - response to comments. The purpose of these review notes is to document how the revised pages, provided as enclosures in the 12-31-96 submittal, were handled.

Enclosure 1 - Monitoring Well Diagrams: Well completion logs for MW-1, MW-2, MW-3, MW-5, MW-6 were inserted into Appendix E-1 of the permit application, starting with page E-177.

Enclosure 2 - Tabulation of all groundwater analysis results: This information was inserted as a new Appendix E-3 (pages E-376 to E-441). A revised page E-8 refers to this new appendix.

Enclosure 3 - Revised pages: Revised pages to Section E which reference the uppermost aquifer (pages E-4, E-8, E-20 to E-25) were inserted into the application.

Enclosure 4 - Trend Analysis for Well UA-1: Per the instructions of CITGO (Kevin Moss) on 9-8-97, this information was <u>not</u> inserted into the RCRA permit application because it was prepared by Geraghty & Miller. CITGO and Radian have not reviewed it. The RCRA permit requires this analysis to be performed, therefore the information will be submitted after the permit is issued.

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1978030004 -- Will County CITGO, Lemont Refinery Log No: B-162 Admin. Record File

Reviewer: Rob Watson

Date: June 9, 1997 to June 26, 1997 (Revised August 4, 1997)

Illinois EPA Responses to Specific Comments from Unocal on the Draft RCRA Permit CITGO (UNO-VEN) Refinery

The IEPA issued a Draft RCRA Permit to the UNO-VEN refinery on September 26, 1996. The comment period for that permit ended on November 14, 1996. However, UNO-VEN was granted an extension until December 31, 1996 to provide comments on the Draft Permit. UNO-VEN's comments were dated December 23, 1996 and received December 30, 1996.

Unocal was the owner of UNO-VEN. Unocal also had financial responsibility for closure of the land treatment areas. Therefore, Unocal provided comments on the Draft RCRA permit.

The comments on the Groundwater Monitoring and Corrective Action Sections of the application were reviewed by Terri Blake Myers and Clayton Bloome respectively. Therefore, the responses to comments on these sections are not included below.

NOTE: CITGO purchased the facility after Unocal submitted comments on the draft permit.

Unocal Comments

Unocal was requested to provide an electronic copy of their comments, but did not. Therefore, Unocal's comments will not be repeated below. The Agency responses will simply refer to the comment numbers.

Overview

General Comments:

Unocal indicates that the land treatment areas (LTAs) should not be closed as landfills. The permit has been revised to remove the requirement to close the LTAs as landfills.

CITGO: B-162 Response to Unocal Comments WRW Review Notes

Unocal indicates that the LTAs should be closed using a vegetative cover rather than the impermeable cover specified in the Draft permit. At this time, the Illinois EPA does not concur with Unocal's determination that the land treatment units should be closed with only a vegetative cap over them. UNO-VEN has clearly indicated their strong intentions to operate the land treatment units as a CAMU. The Illinois EPA will review the merits of the closure plan (and cover system) for the CAMU when they are submitted.

Unocal's comments relating to groundwater monitoring were addressed by Terri Blake Myers.

Section I: RCRA Closure

Comment 1:

Condition I.A: The permit has been revised to remove the requirement to close the LTAs as landfills.

Comment 2:

UNO-VEN has clearly indicated their strong intentions to operate the land treatment units as a CAMU. Therefore, Illinois EPA will review the merits of the closure plan (and cover system) for the CAMU when they are submitted.

This permit has been revised such that UNO-VEN will have the opportunity to justify the design of the final cover system proposed in the application if a permit modification request to operate the units as a CAMU is not submitted. Part of these revisions include the deletion of all of Section I.D (the design requirements for the cover system).

Unocal states that a low permeability cover system has the potential to promote the mobilization of metals and will inhibit further aerobic degradation of the organic compounds in the land treatment unit. As wastes have not been applied to the LTAs since 1989, it is unlikely that a significant amount of aerobic decomposition is still occurring in the units. Similarly, if the organics in the units have been degraded, as indicated by Unocal, it is unlikely that much anaerobic decomposition will take place in the units, either with or without a low permeability cover on them. Never the less, these issues will be fully reviewed either when the closure plan for the CAMU is submitted, or when UNO-VEN submits a justification for the design of the final cover system proposed in the application.

Comment 3:

See response to Comment 2 above.

Comment 4:

Conditions in Section I.D: See response to Comment 2 above.

Comments 5 through 12:

Condition I.D.2: The conditions limiting the velocity of water flow in a drainage channel, the locations of erosion mats, and the location of flood waters are not limited to run-on or run-off control. The purpose of these conditions is to minimize erosion. Similar conditions would be specified if a vegetative cover is used. Also, see the response to Comment 2 above.

Comments 13 through 19:

Conditions in Section I.D: See response to Comment 2 above.

Comment 20:

Condition I.D.11: The requirement to conduct groundwater monitoring was placed in Section I to insure that it is conducted during the closure period. This condition was not deleted.

Comment 21:

Condition I.E.3: The inspection requirements during the closure period are more stringent than those during the post-closure period. The Agency agrees that the post-closure (inspection) requirements begin when closure is complete. However, in the event that the closure activities and/or the certification is not acceptable, the Agency wanted to insure that the more stringent closure period inspection requirements are followed after "completion of closure" and during the review of the closure certification. To help clarify this condition, the last part of it, "... and the conditions for the post-closure period in Section II of this permit are implemented" has been deleted.

Comments 22 through 25:

Condition I.F.1: The specific dates for closure activities have been deleted.

Comment 26:

Condition I.F.4.h: This condition has been revised to require the submittal of the soil samples associated with the construction of the cover system and a summary of the unsaturated zone soil sampling results collected to the date of the Closure Documentation Report.

Comment 27:

Condition I.F.5: This condition has not been revised. The permittee did not object to it.

Section II: Post-Closure

Comment 28:

Condition II.A: This condition does not refer to closure of the LTAs as landfills. The condition was not revised.

Comment 29:

Condition II.A: Unocal makes several comments within Comment 29. First, the wording of this condition has been revised to indicate that the post-closure care period begins when closure is complete (not upon approval of the closure certification). Second, see the response to comment 21. Third, the reference to the 30 year duration of post-closure care is part of the regulations and will remain part of this condition.

Comment 30:

Condition II.C.1: The reference to the 30 year duration of post-closure care is part of the regulations and will remain part of this condition. The permittee did not object to this condition.

Comment 31:

Condition II.C.2: The condition has been revised to require the permittee to record deed restrictions.

Comment 32:

Condition II.C.6: The requirement to conduct groundwater monitoring was placed in Section II to insure that it is conducted during the post-closure period. This condition was not deleted.

Comment 33:

Condition II.C.8: The requirements to maintain the final cover system on the LTAs will remain in the permit. The Agency does not agree with Unocal that compliance with this condition will result in noncompliance with the land treatment regulations in 35 IAC 724, Subpart M. Even a permit that only includes a vegetative cover would include conditions that require the permittee to maintain that final cover system. Also, see response to comment 2. Finally, the reference to landfills has been deleted from this condition.

Comment 34:

Condition II.D.3.b: Unocal requested that only those parameters on the Skinner List (Attachment I) that were detected in the treatment zone be included in the permit. In general, the Agency agrees with this approach. However, the 1995 Site Characterization Report showed that other parameters, not on the Skinner List, were also found in the soils. Therefore, Condition II.D.3.b has been revised to include all of the parameters that have been detected in or below the treatment zone.

In addition, the February 26, 1997 Unsaturated Zone Monitoring Report showed that Carbon Disulfide (a Skinner List compound not detected in 1995) was found in 7 of 8 samples taken below the treatment zone. Thus it appears that all of the hazardous constituents present in and/or below the treatment zone may not have been identified. In order to address this concern, Condition II.D.3.c has been added to require analysis of all of the parameters in Attachment I initially and every five years thereafter.

Comment 35:

Condition II.D.4: The condition was revised/clarified as suggested by Unocal. The results of the soil sampling shall be submitted on July 15 of each year.

Comment 36:

Condition II.D.5: The requirement for the permittee to establish new background concentrations was deleted per Unocal's request. It is not the intent of the Agency to require additional soil sampling and analysis. However, Section 7 of the closure plan in the permit application was not completely clear on how background was established, or what the background values are. Therefore, Condition II.D.8 has been revised to require this information be provided. In the case of the organics, the background value should be the PQL for the compound listed in 35 IAC 724.

Comment 37:

Condition II.E.1: The reference to an "inspection schedule" in Attachment B was deleted.

Comment 38:

Condition II.E.2: The forms in Attachment B will remain unchanged. If the permittee submits a justification for a vegetative cover after the effective date of the permit, the need to revise the inspection forms in Attachment B will be reviewed at that time.

Section III: Groundwater Monitoring

Comments 39 to 54:

These comments were addressed by Terri Blake Myers.

Section V: Reporting and Notification

Comments 55 to 58:

This section is only a summary of those permit conditions that include a reporting or notification requirement. These conditions were revised as necessary to be consistent with the rest of the permit.

CITGO: B-162 Response to Unocal Comments WRW Review Notes

Comment 59:

Attachment H: Unocal requested that this entire attachment be deleted. This attachment has been revised in response to UNO-VEN's comments. It will not be deleted in its entirety.

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ATTACHMENT 2B

Responses to Comments on Groundwater Monitoring for the Draft RCRA POST-CLOSURE PERMIT CITGO, Lemont Refinery

by

Terri Blake Myers

1978030004 Log No. B-162 1978030004 -- Will County CITGO, Lemont Refinery ILD041550567 RCRA Permit, Log No. B-162

Reviewer: Terri Blake Myers

Date: April 23, 1997

Response to Unocal's December 31, 1996 Comments on the Draft RCRA Post-Closure Permit

NOTE: The 12-31-96 submittal by Geraghty & Miller was originally identified as a response to the IEPA's Technical Review Comments dated August 2, 1996. A February 13, 1997 letter from Unocal stated that these items should be considered as comments on the Draft Permit.

SECTION E: GROUNDWATER MONITORING

E-2 Interim Status Groundwater Monitoring Plan

E-2a: Description of Wells

Agency's Technical Review Comment

Page E-3 of the permit application stated that the MW series of wells (MW-1 through MW-9) were sealed and abandoned after the installation of the UA series wells. The application does not adequately address sealing and abandonment of these wells. The following information must be included in this section:

- a. Procedures used for sealing and abandonment of MW-series wells; and
- b. A statement as to if the procedures used were Agency approved.

Unocal Response

No documentation on abandonment of theses wells has been located to date.

Agency Response

Condition III.K.1, of the draft RCRA Part B Permit, required that the above information be submitted within thirty (30) days of the effective date of the Permit. It appears that GMI has made an effort to locate the missing information. At this time, the condition will be deleted due to the inability of GMI to locate the information in the months since the Agency's August 2, 1997, letter that requested the additional information. However, if the information is located at some time in the future it must be forwarded to the Agency within thirty (30) days of its discovery.

Agency's Technical Review Comment

The copies of well completion logs for wells MW-1, MW-2, MW-3, MW-5, MW-6, appear to be missing the lower right hand corner of information. Complete copies of the logs in question must be submitted to the Agency.

Unocal Response

The complete copies of well completion logs for wells MW-1, MW-2, MW-3, MW-5, MW-6 are enclosed with this letter (Enclosure 1).

Agency Response

The submittal of the complete copies of the well completion logs adequately addresses the technical review comment. The well completion logs will be inserted into the RCRA Part B Permit Application.

E-2c: Monitoring Data

Agency's Technical Review Comment

The application does not include tabulation of all groundwater analysis results and elevation data for each well from the first year (1981) and each subsequent sampling event. The application must be updated to include this information.

Unocal Response

The requested data have been tabulated and are herein submitted for inclusion as Appendix E-3 of the permit application (Enclosure 2). Pages E-4 and E-5 of the permit application has been revised to introduce the new Appendix and are included in Enclosure 3. Please remove existing pages which have the same page numbers and insert the new pages.

Agency Response

The submittal of the tabulated data adequately addresses the technical review comment. The data will be inserted into the RCRA Part B Permit Application.

E-4 Topographic Map Requirements

Agency's Technical Review Comment

As required by 35 IAC 703.185(c), the proposed location of groundwater monitoring wells must be included on the topographic map. The monitoring well system for the Storm Water Basin (SWB), (See comments below addressing, E-9: Corrective Action Program, the SWBs) must be included on Figure B-2 or included in Section E-4 by reference to the appropriate Figure they are depicted on. In addition, while Section E-4 states that the locations of the SW-series groundwater monitoring wells are discussed in Section E-6, a specific reference to the figure in which these wells are depicted must be included in Section E-4.

Unocal Response

The response to the part of this technical review comment regarding the SWB monitoring well system is included as part of UNO-VEN's comments on Sections III and IIIa of the draft RCRA Part B permit. The second part of IEPA's comment which is to give a specific reference to a figure illustrating the locations of the SW-series monitoring wells is no longer applicable. The SW-series wells will be abandoned during the closure of the LTF and have been deleted from the post-closure groundwater monitoring plan (See the response to IEPA comment E-6d,2).

Agency Response

After a review of UNO-VEN's comments on Section III and IIIa of the draft RCRA Part B Permit it has been determined that neither the first or second part of the technical review comment will be required. The Agency approves UNO-VEN's request to the delete the groundwater monitoring plan for the GMZ in Section IIIa. Instead, the groundwater around and beneath the stormwater basins will be addressed only under the corrective action portion of the Permit as a solid waste management unit (SWMU 33). Condition III.K.3 addressing the topographic map for the monitoring wells system for SWMU #33 will also be deleted from the RCRA Part B Permit. In addition, after a review of UNO-VEN's comments on Section III of the draft RCRA Part B Permit the Agency concurs that there appears to be no utility in monitoring the shallow (SW-series) wells. The SW-series monitoring system will be deleted from the Permit.

Agency's Technical Review Comment

35 IAC 703.185c states in part, "On the topographic map required under Section 703.183(s), a delineation of ...and, to the extent possible, the information required in subsection (b)". 35 IAC 703.185(b) goes on to state in part this information includes "Identification of the uppermost aquifer and aquifers hydraulically interconnected beneath the facility property, including groundwater flow direction and rate..." Section E-4 must include specific references (s) to the figures(s) in which this information is depicted.

Unocal Response

Section E-4 of the permit application has been revised to include specific references to figures depicting the uppermost aquifer beneath the facility in cross-section, and well locations and groundwater flow direction in plan view. The revised pages to be inserted are included in Enclosure 3. Please remove existing pages which have the same page numbers.

Agency Response

The submittal of the revised RCRA Part B Permit Application pages including specific references to items listed in the Agency's technical review comment are adequate at this time. The revised pages will be inserted into the RCRA Part B Permit Application. In addition, Condition III.K.4 of the RCRA Part B Permit requiring that this information be submitted will be deleted.

E-6 General Monitoring Program Requirements

E-6b: Description of Sampling and Analysis Procedures

Agency's Technical Review Comment

It appears that a re-evaluation of constituents proposed to be monitored by the shallow and deep groundwater monitoring wells is necessary. Constituents have been found in soils in the treatment zone, below the treatment zone, perimeter samples and the stream sediment samples. The re-evaluation must be in accordance with 35 IAC 703.185(f) and 35 IAC 724.198(a) and the list of indicator parameters, waste constituents, or reaction products must provide a reliable indication of the presence of hazardous constituents in the groundwater. Applicable sections of the permit of the permit application must reflect these changes.

Unocal Response

The review of unsaturated zone and groundwater monitoring data presented in the Land Treatment Facility Operation Summary Report included as Exhibit G of the joint comments to the draft RCRA Part B permit submitted by Unocal and UNO-VEN indicates that migration of waste constituents below the treatment zone is negligible. Further, there is no indication of a release to groundwater at the Land Treatment Facility based on statistical analysis of indicator parameter data. The proposed metals (arsenic, chromium, and lead) and organics indictor parameters (TOC and TOX) along with pH and specific conductance are adequate for the detection monitoring program. Arsenic is the only constituent that appears to have migrated to the base of the treatment zone, and arsenic is included in the soil core and groundwater monitoring program.

Agency Response

As discussed above, the shallow zone (SW-Series) monitoring program has been deleted from the RCRA Part B Permit at this time. Therefore, the issue of what constituents are to be sampled for in the shallow zone is no longer applicable.

Agency's Technical Review Comment

35 IAC 724.197(j) states "Groundwater monitoring data collected in accordance with subsection (g), including actual levels of constituents, must be maintained in the facility operating record. The Agency shall specify in the permit when the data must be submitted for review." After each semiannual monitoring event, a report documenting sampling activities and analytical results must be submitted. The reports must include sampling and analysis procedures and any deviations from the approved plan, along with the items proposed in Section 7.3 of the Groundwater Sampling and Analysis Plan located in Appendix E-2 of the application. Applicable sections of the permit application must reflect these changes.

Unocal Response

Section 7 (Data Analysis and Reporting) of the Groundwater Sampling and Analysis Plan has been revised accordingly. The revised plan is included as part of Unocal's comments on the draft RCRA Part B permit (Exhibit D).

Agency Response

A review of Exhibit D will not take place at this time, however, the Permit contains conditions addressing the issues in the technical review comment.

E-6c: Procedures for Establishing Background Quality

Agency's Technical Review Comment

Page E-236 of the Appendix E-2: Sampling and Analysis Plan states in part "...the most recent two years of interim status groundwater from Monitoring Well UA-1 will be used to establish background values for each parameter." The background values calculated for UA-1 must be based on historical data gathered over the entire interim status period using a trend analysis. The Permit will require that the calculations be submitted for Agency review and approval.

Unocal Response

Groundwater data obtained from April 1989 to March 1990 for monitoring well UA-1 will be used to establish the background values. A trend analysis performed for the indicator parameters indicates there is no statistically significant shift in background values, with the possible exception of TOX. A possible downward trend in TOX is indicated by the trend analysis performed. UNO-VEN will perform additional review of the TOX data for Well UA-1 and determine what adjustments to background are appropriate, if any. The trend analysis information is presented in Enclosure 4. Section 7 (Data Analysis and Reporting) of the Groundwater Sampling and Analysis Plan has been revised accordingly. The revised plan is included as Part of Unocal's comments on the draft RCRA part B permit (Exhibit D).

Agency Response

A review of Exhibit D will not take place at this time.

E-6d: Statistical Procedures

Agency's Technical Review Comment

Page E-237 of the Appendix E-2: Sampling and Analysis Plan states "In addition to the statistical evaluation of the data, the chemical analytical monitoring results will be compared to concentration limits established in the post-closure care permit." In lieu of this, the chemical analytical monitoring results must be compared to the appropriate 35 IAC 620.410 groundwater quality standard.

Unocal Response

Section 7 (Data Analysis and Reporting) of the Groundwater Sampling and Analysis Plan has been revised to reflect a comparison of detection monitoring parameters to the corresponding 35 IAC 620.410 groundwater quality standards. The revised plan is included as part of Unocal's comments on the draft RCRA part B permit (Exhibit D).

Agency Response

A review of Exhibit D will not take place at this time.

Agency's Technical Review Comment

More details addressing the data analysis for shallow wells found on page E-237 id required. The permit application must define what is meant by (1) "sufficient quantity" of water quality data, (2) "obvious trends" or (3) "sudden changes." The permit will include a condition for the shallow monitoring well sampling and analysis that requires identification of the concentration of any constituent detected which exhibit a progressive increase over four (4) consecutive quarters. In addition, if constituents are added to the monitoring list based on the re-evaluation above, the Permit will include a condition to identify any constituent detected which was not detected in the previous sampling event.

Unocal Response

The SW-series wells will be abandoned during closure of the LTF and will not be part of the post-closure groundwater monitoring program. Section 7 (Data Analysis and Reporting) of the Groundwater Sampling and Analysis Plan has been revised accordingly. The revised plan is included as Part of Unocal's comments on the draft RCRA Part B permit (Exhibit D).

Agency Response

A review of Exhibit D will not take place at this time.

E-7 DETECTION MONITORING PROGRAM

E-7A: Indicator Parameters, Waste Constituents, Reaction Products to be Monitored

Agency' Technical Review Comment

These requirements were not adequately addressed. See comments with E-6b above.

Unocal Response

See responses to E-6b above.

Agency Response

See Agency Response to E-6b above.

E-7c: Background Groundwater Concentration Values for Proposed Parameters

Agency' Technical Review Comment

These requirements were not adequately addressed. See comments with E-6c above.

Unocal Response

See response to E-6c above.

Agency Response

See Agency Response to E-6c above.

E-9 CORRECTIVE ACTION PROGRAM

Agency's Technical Review Comment

The January 25, 1996, letter from USEPA granted approval for the closure of the SWB. However, this did not change the requirements of the applicable Agency groundwater monitoring programs at or near the SWB. The GMZ will be identified as Solid Waste Management Unit (SWMU) #33 in the Permit. The groundwater monitoring requirements associated with SWMU #33 will be included in the groundwater monitoring section of the permit, specifically E-9: Corrective Action Program. The permit application must be revised to include this program.

Unocal Response

The response to the technical review comment has been provided to the IEPA as part of UNO-VEN's comments on the draft RCRA Part B permit.

Agency Response

After a review of UNO-VEN's comments on Section III and IIIa of the draft RCRA Part B Permit, it has been determined that UNO-VEN's request to delete the groundwater monitoring plan for the GMZ in Section IIIa will be approved. Instead the groundwater around and beneath the stormwater basins will be addressed only under the corrective action portion of the Permit as SWMU #33.

E-10 DESCRIPTION OF CORRECTIVE ACTION FOR SOLID WASTE MANAGEMENT UNITS

Agency's Technical Review Comment

As discussed above in E-9: Corrective Action Program, the GMZ will be identified as SWMU #33. The permit application must be revised to include SWMU #33.

Unocal Response

The response to this technical review comment has been provided to the IEPA as part of UNO-VEN's comments on the draft RCRA Part B permit.

CITGO: B-162
IEPA Response to Unocal Comments
Page 8

Agency Response

As discussed above after a review of UNO-VEN's comments on Section III and IIIa of the draft RCRA Part B Permit, it has been determined that UNO-VEN's request to delete the groundwater monitoring plan for the GMZ in Section IIIa will be approved. Instead the groundwater around and beneath the stormwater basins will be addressed only under the corrective action portion of the Permit as SWMU #33.

1978030004 -- Will County CITGO, Lemont Refinery ILD041550567 RCRA Permit, Log No. B-162

Reviewer: Terri Blake Myers

Date: April 27, 1997

Response to Unocal's December 23, 1996 Comments on the Draft RCRA Post-Closure Permit

INTRODUCTION/OVERVIEW

1. Proposal for Groundwater Monitoring

Unocal Comment

Unocal makes a statement on page 1 of the INTRODUCTION/OVERVIEW comments that "Unocal also proposes, without waiving its objections, to conduct groundwater monitoring as part of its proposal to close with a vegetative cover (See Exhibit D)."

Agency Response

35 III. Adm. Code 35 III. Adm. Code 724.190(a)(b) states in part "...A surface impoundment, waste pile, land treatment unit or landfill that receives hazardous waste after July 26, 1982 (hereinafter referred to as a "regulated unit") must comply with the requirements of Sections 724.191 through 724.200 in lieu of 724.201 for the purposes of detecting, characterizing and responding to releases to the uppermost aquifer...". However, it does not say that land treatment units that received hazardous waste before July 26, 1982 do not. Although no hazardous wastes have been applied in the LTUs since 1981, the LTUs are regulated units and subject to 35 III. Adm. Code Subpart F requirements found in Sections 724.191 through 724.200. Therefore, the groundwater monitoring program will remain in Section III of the Permit and a review of Exhibit D will not take place.

2. Applicability of Subpart F Groundwater Monitoring

Unocal Comment

Page 4 of Unocal's comments states "Concerning groundwater monitoring and the provisions set forth in Section III of the draft permit, because no hazardous wastes were applied in the LTUs since 1981, for purposes of groundwater monitoring requirements, the LTUs are not regulated units, and no groundwater monitoring is legally required." A discussion of the applicability of Section 724 groundwater monitoring requirements, specifically referencing 35 Ill. Adm. Code 724.190 was provided as justification.

Agency Response

As discussed in the Agency Response to Number 1 above, although no hazardous wastes have been applied in the LTUs since 1981, the LTUs are regulated units and subject to the 35 Ill. Adm. Code Subpart F requirements found in Sections 724.191 through 724.200. While, the Unocal comments contest this point now, at the time of the submittal of the May 15, 1996 RCRA Part B Permit Application the applicability of Section 724 groundwater monitoring requirements was not in question.

Page E-1, Section E: Groundwater Monitoring, of the May 15, 1996, RCRA Part B Permit Application, prepared by Geraghty & Miller, Inc. (GMI), addressed groundwater monitoring for the LTUs. The introduction to Section E states that "This section discusses the ongoing interim status monitoring and hydrogeology of the site and the monitoring to be performed during the post-closure period. Information is presented to satisfy the requirements of 40 CFR 270.14(c) and 35 IAC 703.185." Section E-1: Exemption From Groundwater Protection Requirements goes on to state in part, "...the only unit subject to groundwater monitoring requirements pursuant to the RCRA Part B Post-Closure Permit will be the LTF. UNO-VEN is not seeking an exemption from groundwater protection requirements." (emphasis added).

It appears that GMI has had a change in interpretation between the time in which they prepared the RCRA Part B Permit Application and the time in which they prepared comments on the draft RCRA Permit. Page 1 of the comments addressing the draft RCRA Permit, states in part that "Unocal's comments raise, among other things, two fundamental areas of concern....The second relates to the provision of Section III which concern groundwater monitoring." The Agency did not arbitrarily add the groundwater monitoring program in Section III, but rather approved what was proposed by GMI in the RCRA Part B Permit Application. The Agency believes that a groundwater monitoring program for the LTU is appropriate and will continue to include one in Section III of the Permit.

3. Monitoring of Perched Zone

Unocal Comment

Page 5 of Unocal's comments addressed the perched zone groundwater monitoring. As discussed by Unocal, Subpart F requirements address only the uppermost aquifer. Therefore, because the perched zone is not part of the uppermost aquifer it would not be required to be monitored.

Agency Response

Page E-20, Section E-6: Groundwater Monitoring System states in part that "A summary of the groundwater monitoring program to be conducted during closure and post-closure periods for the land treatment area is presented below. Refer to Appendix E-2,

"Groundwater Sampling and Analysis Plan, Land Treatment Area, UNO-VEN Refinery, Lemont, Illinois", for additional details regarding the groundwater monitoring system...". In Appendix E-2, Section 3.1: Rationale For Monitoring Well Locations and Depths, the shallow groundwater monitoring wells are discussed. On page E-212 GMI states that "The shallow wells have been included as part of the monitoring network to provide early detection of chemical constituents that could potentially migrate to the uppermost aquifer."

While, the Agency concurs that in accordance with the regulations the shallow zone is not required to be monitored, it must be noted that the Agency did not arbitrarily add the shallow zone groundwater monitoring wells to the groundwater monitoring program in the Permit. The shallow zone monitoring program was approved by the Agency as proposed by GMI in the RCRA Part B Permit Application. The shallow zone monitoring program will be deleted from the Permit.

SECTION III: GROUNDWATER DETECTION MONITORING PROGRAM

Summary

Unocal Comment 39

As discussed in the INTRODUCTION/OVERVIEW, the applicability of the entire groundwater monitoring program is questioned, and at the very least the inappropriateness of the shallow zone monitoring. While discussing the appropriateness of the shallow zone this comment includes as further justification that shallow zone monitoring is not required under the groundwater monitoring standard because "...where, as here, the data demonstrates that no migration from the land treatment units has occurred.".

Agency Response

The Agency responses to the applicability of the entire groundwater monitoring program and the appropriateness of the shallow zone groundwater monitoring are found in the Agency Responses to Numbers 2 and 3 above.

The Agency can not concur with the statement that data demonstrates that migration from the land treatment units has occurred. The "Site Characterization Report", March 1995, reported that hazardous constituents had migrated below the treatment zone. Therefore, the data <u>does not</u> demonstrate that no migration from the land treatment units has occurred.

Condition III.C.2

Unocal Comment 40

It is requested that Condition II.C.2 requiring the installation of new wells into the discontinuous perched water bearing zone present above the uppermost aquifer be deleted.

Agency Response

Condition II.C.2 has been deleted.

Condition III.C.3

Unocal Comment 41

It is requested that Condition III.C.3 be revised to reflect that the SW-Series wells will not be replaced.

Agency Response

Due to the deletion of the SW-Series groundwater monitoring wells, Condition III.C.3 will be deleted in it's entirety.

Condition III.C.5

Unocal Comment 42

It is requested the requirement that the logging of boreholes be recorded on IEPA forms found in Condition III.C.5 be removed.

Agency Response

Condition III.C.5 will not be revised. It as been the Agency's experience that the use of the Agency boring log has not caused any confusion as to who actually logged the borehole.

Unocal Comment 43

It is requested that the requirement, found in Condition III.C.5, for continuous sampling be modified to allow judgement to be used to determine if such logging is needed, especially for replacement wells within 10-ft of the original well that was continuously logged when installed.

Agency Response

Condition III.C.5 will not be revised. The requirement for continuous sampling is in accordance with Agency guidelines.

Condition III.D.7

Unocal Comment 44

It is requested that Condition III.D.7 be removed as unworkable and excessive and no longer needed because monitoring will not be performed in perched groundwater zones above the Uppermost Aquifer.

Agency Response

Condition II.D.7 is applicable to all groundwater monitoring wells at the facility including the UA-Series wells. Therefore, the condition will not be deleted.

Condition III.C.10

Unocal Comment 45

It is requested that Condition III.C.10 be removed. Unocal believes that the attempt to condition the RCRA permit upon compliance with the provision of the Water Well Code is beyond the scope of RCRA permitting authority set forth in Section 39(d) of the Act and unlawfully subjects the Permittee to "double penalty" for violation of a regulation promulgated and enforced pursuant to other legislative authority.

Agency Response

In accordance with 35 Ill. Adm. Code 703.241(a)(2), each RCRA permit issued under Section 39(d) of the Environmental Protection Act shall contain terms and conditions that the Agency determines are necessary to protect human health and the environment . The Illinois Water Well Construction Code (77 Ill. Adm. Code 920) sets minimum requirements for wells within the State and therefore minimum requirements for wells/piezometers at UNO-VEN. Condition III.C.10 will not be deleted.

The Agency can not concur with the belief that the inclusion of such a requirement would subject the Permittee to "double penalty" for violation of a regulation promulgated and enforced pursuant to other legislative authority. 35 Ill. Adm. Code regulations themselves contain references to regulations promulgated and enforced pursuant to other legislative authorities. Examples can be found in 35 Ill. Adm. Code 722.131 and 722.132 in which Department of Transportation regulations are sited.

Condition III.D.1

Unocal Comment 46

It is requested that a note be added to the table found in Condition III.D.1 indicating that the B series of wells will be utilized for water level measurement only.

Agency Response

Condition III.D.1 has been revised to include clarifying language.

Unocal Comment 47

It is requested that references to the SW-Series of wells be removed from the table of parameters in Condition III.D.1.

Agency Response

Condition III.D.1 will be revised by deleting the references to the SW-Series groundwater monitoring wells.

Unocal Comment 48

It is requested that the inorganics listed on List G1 be added to the List G2, except that no total inorganics analyses be conducted.

Agency Response

Condition III.D.1 will be revised to:

- 1. Add the inorganics listed in List G1 to List G2;
- 2. To analyze for only dissolved (filtered) inorganics; and
- 3. Add a requirement that should a parameter be detected in the groundwater and found to be statistically above background the subsequent monitoring event would include total (unfiltered) analysis for inorganics and comparison to the appropriate 35 Ill. Adm. Code 620 groundwater quality standards.

Condition III.D.2

Unocal Comment 49

It is requested that the reference to the SW-Series wells be removed from Condition III.D.2.

Agency Response

Condition III.D.2 has been revised to delete the reference to the SW-Series wells.

Unocal Comment 50

It is requested that the Condition III.D.2 be deleted.

Agency Response

The Permittee did not object to Condition III.D.2. Therefore, Condition III.D.2 will not be deleted.

Condition III.H.2

Unocal Comment 51

It is requested that Condition III.H.2 be revised to reflect semi-annual monitoring rather than quarterly.

Agency Response

Condition III.H.2 has been revised to reflect semi-annual monitoring of wells.

Condition III.I.9.d

Unocal Comment 52

It is request that the requirements for a compliance monitoring program, found in Condition III.I.9.d, be deleted and the groundwater activities beyond that included in the Groundwater Monitoring Plan (Exhibit D) be conducted under the provisions of applicable regulations.

Agency Response

As in the Agency's response to Number 1 of the INTRODUCTION/OVERVIEW Section, it is the Agency's belief that the land treatment units are regulated units and subject to the 35 Ill. Adm. Code Subpart F requirements. Condition III.I.9.d will not be deleted from the Permit.

Condition III.I.9.e

Unocal Comment 53

It is requested that the requirements for a corrective action program, found in Condition III.I.9.e, be deleted from the Permit and the groundwater activities beyond that included in the Groundwater Monitoring Plan (Exhibit D) be conducted under the provisions of applicable regulations.

Agency Response

As in the Agency's response to Number 1 of the INTRODUCTION/OVERVIEW Section, it is the Agency's belief that the land treatment units are regulated units and subject to the 35 III. Adm. Code Subpart F requirements. Condition III.I.9.e will not be deleted from the Permit.

Conditions III.K.3 and III.K.4

Unocal Comment 54

It is not clear to Unocal as to how to depict in requested information on the topographic map.

Agency Response

Conditions III.K.3 and III.K.4 have been deleted from the Permit.

Condition V.III.I.9.d

Unocal Comment 57

It is requested that Condition V.III.I.9.d be deleted.

Agency Response

As discussed in the Agency's Response to Unocal's Comment 52, it is the Agency's belief that the land treatment units are regulated units and subject to the 35 Ill. Adm. Code Subpart F requirements. Therefore, Condition V.III.I.9.d will not be deleted from the Permit.

Condition V.III.I.9

Unocal Comment 58

It is requested that Condition V.III.I.9 be deleted.

Agency Response

As discussed in the Agency's Response to Unocal's Comment 53, it is the Agency's belief that the land treatment units are regulated units and subject to the 35 Ill. Adm. Code Subpart F requirements. Therefore, Condition V.III.I.9 will not be deleted from the Permit.

1978030004 -- Will County CITGO, Lemont Refinery ILD041550567 RCRA Permit, Log No. B-162

Reviewer: Terri Blake Myers

Date: April 29, 1997

Response to UNO-VEN's December 23, 1996 Comments on the Draft RCRA Post-Closure Permit

SECTION III - GROUNDWATER DETECTION MONITORING PROGRAM

Conditions III.C.2-3

UNO-VEN Comment

It is requested that the SW-Series wells and associated paragraphs be deleted.

Agency Response

The SW-Series wells have been deleted. Therefore Conditions III.C.2 and III.C.3 have been deleted from the Permit.

Condition III.C.6 (Revised Permit, Condition III.C.4)

UNO-VEN Comment

It is requested that this section be modified in accordance with the comments for Conditions III.C.2 and III. C.3.

Agency Response

Due to the deletion of the SW-Series wells and associated language, Condition III.C.6 (Revised Permit Condition III.C.4) was modified to delete reference to wells previously listed in Condition III.C.2 (SW-Series wells).

Condition III.D.1

UNO-VEN Comment

The requested changes are as follows:

- a. It is requested that the first paragraph be modified to clarify that only the UA-Series wells and not the piezometers contained in Condition III.C.1 are to be sampled. In addition, it is requested that the first paragraph be modified in accordance with the comments for Conditions III.C. 2 and III.C.3.
- b. It is requested that a note, for clarification purposes, be added to require measuring point recording once every five years.
- c. It is requested that "List G1" be deleted because it pertains to the SW-Series wells. UNO-VEN intends to monitor for the same parameters in the UA-Series wells.
- d. It is requested that inorganics be analyzed for the only dissolved (filtered) fraction. Should a inorganic constituent ever be detected in the groundwater that was shown to be statistically above background the subsequent monitoring should then trigger the total (unfiltered) analysis so that the results could be compared to the 35 Ill. Adm. Code 620 standards.

Agency Response

The Agency responses to each of the items above are as follows:

- a. The first paragraph of Condition III.C.1 was modified to provide clarifying language and delete the reference to Condition III.C.2.
- b. The note to clarify when the elevation of the measuring point shall be taken has been added to the Permit. In addition, this field parameter has been moved to the bottom of the list to avoid confusion with the semi-annual field parameters.
- c. "List G1" has been deleted from the Permit.
- d. The Permit has been modified to reflect the requested changes.

Condition III. D.2

UNO-VEN Comment

It is requested that Condition III.D.2 be modified in accordance with the comment for Conditions III.C.2 and III.C.3.

Agency Response

Condition III.D.2 has been modified to delete references to the SW-Series wells.

Condition III.E

UNO-VEN Comment

It is requested that the first paragraph be modified in accordance with comment for Conditions III.C.2 and III.C.3.

Agency Response

The first paragraph has been modified to delete the reference to wells in Condition III.C.2.

Condition III.G.3

UNO-VEN Comment

A comment addressing Condition III.G.3 was not provided.

Agency Response

Condition III.G.3 was deleted due to the deletion of the SW-Series wells.

Condition III.H.2

UNO-VEN Comment

It is requested that the timing of groundwater monitoring, in Condition III.H.2, be stated as semi-annually for the four land treatment units in order to make it consistent with the rest of Section III.

Agency Response

Condition III.H.2 has been modified to reflect semi-annual sampling.

Condition III.I.5

UNO-VEN Comment

It is requested that Condition III.I.5 be modified in accordance with comments to Conditions III.C.2 and III.C.3 and that the last sentence of Condition III.I.5.a be deleted in its entirety.

Agency Response

Condition I.5 was modified as requested.

Condition III.I.6

UNO-VEN Comment

A comment addressing Condition III.I.6 was not provided.

Agency Response

Condition III.I.6 was modified due to the deletion of the SW-Series wells.

Condition III.I.7

UNO-VEN Comment

It was noted that Attachment A does not provide chemical analysis forms that would be sufficient for recording the requested information.

Agency Response

The Chemical Analysis Forms were inadvertently omitted from Attachment A in the draft Permit. Attachment A now contains copies of the appropriate forms.

Condition III.I.9.c

UNO-VEN Comment

It is requested that "from well UA-1" be added to the text of Condition III.I.9.c.

Agency Response

Condition III.I.9.c has been modified to include the suggested language.

Condition III.K.1

UNO-VEN Comment

A comment addressing Condition III.K.1 was not provided.

Agency Action

Condition II.K.1 has been deleted due to additional information received in Unocal's Response to Technical Review Comments, dated February 13, 1997.

Condition III.K.2

UNO-VEN Comment

A comment addressing Condition III.K.2 was not provided.

Agency Action

Condition III.K.2 has been deleted due to additional information received in Unocal's Response to Technical Review Comments, dated February 13, 1997.

Condition III.K.3

UNO-VEN Comment

It is requested that Condition III.K.3 be deleted for reasons cited in the comments to Section IIIa.

Agency Response

Condition III.K.3 has been deleted.

Condition III.K.4

UNO-VEN Comment

UNO-VEN is unclear as to what the Agency is requesting.

Agency Response

Condition III.K.4 has been deleted due to additional information received in Unocal's Response to Technical Review Comments, dated February 13, 1997.

SECTION IIIa - GROUNDWATER MONITORING: SWMU #33 (GMZ)

UNO-VEN Comment

It is requested that Section IIIa be deleted from the Permit. UNO-VEN suggests that the groundwater monitoring plan specified in this section be incorporated into the Group 1 Phase I/II work plan for the SWMU to undergo long-term monitoring as prescribed.

Agency Response

Section IIIa has been deleted from the Permit and the monitoring plan will be incorporated into the Group 1 Phase I/II work plan for the SWMU.

SECTION V - REPORTING AND NOTIFICATION REQUIREMENTS

Condition V.III.C.1

UNO-VEN Comment

It is requested that the condition state that the map is due "within 90 days of completion of any additional wells required by this permit" and within 90 days following other significant facility changes.

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IEPA Response to Comments
Page 6

Agency Response

Condition V.III.C.1 has been modified to reflect the proposed language.

Condition V.III.I.9

UNO-VEN Comment

It is requested that Condition V.III.I.9 be modified to be consistent with language in Condition III.I.9.

Agency Response

Condition V.III.I.9 has been modified to reflect the proposed language.

1978030004 -- Will County CITGO, Lemont Refinery ILD041550567 RCRA Permit, Log No. B-162

Reviewer: Terri Blake Myers

Date: July 10, 1997

Response to UNO-VEN's June 2, 1997 Comments on the Draft RCRA Post-Closure Permit

Condition III.D.2

CITGO's Comment

This condition requires a re-evaluation of background <u>constituents</u> proposed for monitored by the UA-series wells for Agency review and approval. Further the conditions states that constituents have been found below the treatment zone.

It is understood that when a unit moves from interim to permitted status the regulations require background constituents to be re-evaluated. However, compiled data has not indicated that constituents, above statistical limits, have migrated below the treatment zone. It is requested that the wording of the condition be revised.

Illinois EPA's Response

As documented by your July 2, 1997, review of the Unsaturated Zone Monitoring Plan and Post-Closure Care Permit, data has indicated that constituents, above statistical limits, have migrated below the treatment zone. Page 4 of your review discusses statistically significant increases for the organic compounds and results in your modification to Condition II.D.5 to state that any sample concentration greater than the PQL for an organic compound is considered a statistically significant increase.

Your "**NOTE**" as found on Page 4 states:

Review of the February 26, 1997, Unsaturated Zone Monitoring Results revealed the following: Benzene was detected in one sample at 7 ug/kg; its PQL is 2 ug/l. Carbon Disulfide was found in concentrations of 13 to 32 ug/kg; its PQL is 5 ug/l. The unsaturated monitoring plan compared the results to the Tier 1 TACO values for the migration route to groundwater. Therefore, they concluded that no statistically significant increase is detected. However, if the 1997 concentrations of Benzene and Carbon Disulfide are compared to their PQLs, as required by the Post-Closure Permit, there would be eight samples that showed a statistically increase.

The 2-26-97 Report also indicated that Selenium was detected in one sample at 1.2 mg/kg; its upper expected limit is 0.56 mg/kg. Therefore, there was a statistically significant increase in selenium which they did not report to the Agency.

Condition III.D.2 will not be revised.

Condition III.K

CITGO's Comment

This condition requires that the information required under III.C.2, III.D.2 and III.G.2, be submitted as a permit modification.

It is presumed that these will be informational, i.e., Class I, permit modifications. If the information required does not change from existing, does a permit modification still need to be submitted? Please provide clarification.

Illinois EPA's Response

The information submitted in response to Conditions III.C.2, III.D.2, and III.G.2 must be submitted as permit modification request only if the information provided will result in a modification of the permit. regardless if the information changes or does not change from existing information, it must be submitted for the Illinois EPA's review and approval.

Condition III.a

CITGO's Comment

Based on a review, it appears that all reference to the GMZ (SWMU 33) has been removed from the permit. Please clarify the status of the GMZ with respect to the permit.

Illinois EPA's Response

Section III.a has been deleted from the Permit and the monitoring plan has been incorporated into the Group 1, Phase I/II workplan for the SWMUs.

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ATTACHMENT 2C

Responses to Comments on Corrective Action for the Draft RCRA POST-CLOSURE PERMIT CITGO, Lemont Refinery

by

Clayton Bloome

1978030004 Log No. B-162

RESPONSE TO COMMENTS REGARDING CORRECTIVE ACTION PORTIONS OF UNO-VEN'S DRAFT RCRA PERMIT

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RESPONSE TO COMMENTS REGARDING CORRECTIVE ACTION PORTIONS OF UNO-VEN'S DRAFT RCRA PERMIT

1.0 INTRODUCTION

A draft RCRA post-closure permit for the UNO-VEN facility near Lemont, Illinois was issued for public comment by Illinois EPA on September 30, 1996. UNO-VEN submitted comments on this draft permit in a December 23, 1996 letter (with attachments) from Joel Garretson. Attachment 1 to this submittal contained proposed revisions to the draft permit, while attachment 2 provided UNO-VENT's comments and discussion in support of their proposed changes. This document responds to UNO-VEN's corrective action related comments. The corrective action portions of the permit are: (1) Section III, A Groundwater Monitoring: SWMU #33 (GMZ); (2) Section IV, Corrective Action Activities; (3) Attachment C, Scope of Work for a RCRA Facility Investigation; and (4) Attachment D, Corrective Measures Program Requirements.

35 Ill. Adm. Code 724.201 and Section 3004(a) of RCRA requires facilities with RCRA permits to institute correction action, as necessary, to protect human health and the environment from releases of hazardous waste/constituents from solid waste management units present at the permitted facility. In general, corrective action is a four step process:

- 1. Development of a RCRA Facility Assessment in which the SWMUs at a given facility are identified.
- 2. Imposition of corrective action requirements through the issuance of a permit. The procedures for carrying out the third and fourth steps described below are then set forth in this permit.
- 3. The RCRA Facility Investigation (RFI) is the second phase of the RCRA corrective action program (CAP). The RFI is conducted to determine if the SWMUs of concern identified during the RCRA Facility Assessment (RFA), which is the first phase of the RCRA CAP, have released hazardous waste/constituents, and if so, the extent and character of the release. Based upon the results of the RFI, the Agency and owner/operator will determine the necessity of instituting corrective measures to remediate existing contamination at the site.
- 4. Development/implementation of the necessary corrective measures. As previously indicated, UNO-VEN had many comments regarding the procedures set forth in the permit regarding corrective action. This section addresses UNO-VEN's comments regarding RFI procedures. These procedures were set forth in Section IV, Subsection B and Attachment C of the draft permit.

The majority of UNO-VEN's corrective action related comments proposed changes to five issues: (1) SWMUs investigated; (2) RFI approach; (3) Groundwater Evaluation; (4) Groundwater Management Zone (GMZ); and (5) Corrective Measures Program (CMP) approach. Therefore, each of these will be discussed in separate sections of this document (Sections 2 thru 6, respectively). After these responses, other comments relating to corrective action issues will be discussed in Sections 7 through 10.

2.0 CHANGES IN SWMUS BEING INVESTIGATED

2.1 UNO-VEN'S PROPOSED CHANGES

Condition IV.B.1.a of the draft permit identifies the SWMUs which are to be investigated in the RFI. UNO-VEN believes that SWMUs 22, 23D, 28, 41, 42, and 43 should be removed from this list. The rationale for the removal of each is discussed below (This text is taken directly from UNO-VEN's Comments).

SWMU 22 (Storm Water Basin), includes two basins (east and northwest basins) located north and east of the treated water basin. Clean closure was first attempted from 1991 to 1993 through in situ bioremediation. While the remediation successfully degraded the benzene that was characterized as hazardous, the non-hazardous sludge could not pass the risk assessment criteria established by U.S. EPA. Therefore, a revised closure plan was submitted and approved. UNO-VEN implemented a clean closure by completely removing and appropriately disposing of the sludge and sediments from the pond.

This closure was completed in September 1995, and the report was submitted to the U.S. EPA in November 1995. In a January 25, 1996 letter, U.S. EPA Region V stated: "the U.S. EPA hereby approves the Closure Certification and SWB Closure Documentation Report . . . for the UNO-VEN Refinery in Lemont, Illinois."

The RFA includes all of the above documentation except for information on the submittal of the closure report and U.S. EPA's approval of the Closure Certification and SWB Closure Documentation Report.

RFI Status: There is no environmental benefit to be gained through investigation of this SWMU in the RFI process. The sludge and residual waste was removed and closure was approved by U.S. EPA. The units currently receive only storm water runoff, and the groundwater beneath and adjacent to this area is designated as SWMU 33.

23D SWMU 23D (Water and Wastewater Treatment Plant, WWTP) is a basin that holds treated water discharged from the wastewater treatment plant. This water meets the facility's National Pollutant Discharge Elimination System (NPDES) permit limits and is discharged into the Chicago Sanitary and Ship Canal. Since there is no evidence of a release or the potential for a release from this unit, it should be removed from the permit.

- SWMU 28 (Filter Press and Sludge Dewatering at Alky Unit) is a process area for the dewatering of sludge from the alky unit, which contains potassium chloride and calcium fluoride. Sludge is settled in a large, concrete basin and transferred to a holding tank. The pH is adjusted as needed. The sludge is centrifuged, the water is released into the process sewer, and the sludge is disposed off site as a nonhazardous waste. The area is totally self-contained, and the process is tightly controlled. Since there is no evidence of a release or the potential for a release from this unit, UNO-VEN recommends that SWMU 28 be removed from the permit.
- SWMU 41 (East Tank Farm) is a large area that contains many aboveground storage tanks. There are individual SWMUs identified from this tank farm that will be investigated under the RFI for potential releases. Other than these designated SWMUs, no other areas within the tank farm show evidence of a release or a potential for release. The tank farm is controlled with berms and regular maintenance, eliminating the potential for on-site migration. The tank farm should not be considered a SWMU. However, UNO-VEN will commit to a literature search and historical review of any information pertaining to this tank farm. If any evidence of a past release or potential for release is found, UNO-VEN will follow the procedures laid out in Section IV.F of this Permit.
- SWMU 42 (West Tank Farm) is a large area that contains many aboveground storage tanks. There are individual SWMUs identified from this tank farm that will be investigated under the RFI for potential releases. Other than these designated SWMUs, no other areas within the tank farm show evidence of a release or a potential for release. The tank farm is controlled with berms and regular maintenance, eliminating the potential for on-site migration. The tank farm should not be considered a SWMU. However, UNO-VEN will commit to a literature search and historical review of any information pertaining to this tank farm. If any evidence of a past release or potential for release is found, UNO-VEN will follow the procedures laid out in Section IV.F of this Permit.
- The IEPA designated the product pipelines as SWMU 43. UNO-VEN does not believe that the product lines meet the definition of a SWMU and proposes that the pipelines be removed from the permit. However, the substantial spills from these lines will be identified and investigated under the RFI (by file review and review of other historical information) to determine their potential impact to soil and groundwater. It is proposed that the suspected spills identified by the IEPA be added as SWMUs 43A-I. A literature search will be used to identify other spills requiring an RFI. The "RCRA Corrective Action Strategy and RFI

Approach for UNO-VEN SWMUs" document (Exhibit A) contains a list of the spills known at this time.

2.2 IEPA RESPONSE

Based upon a review of all available information, it does not appear as though SWMUs 22, 23D and 28 need to be investigated as part of the corrective action activities of this permit. Sufficient information has been provided to determine that the threat of a release which would impact human health and the environment is minimal. However, it must be noted that the groundwater issues in the vicinity of SWMU 22 remain a concern. These issues are further addressed in Section 4.0 below.

SWMUs 41 and 42 are large and initial investigations should not be the same for these areas as for other smaller SWMU. These units should not be deleted from the permit due to the fact that releases have occurred in these areas before and the threat of a release from this area is significant do to the large volumes of petroleum products stored here. However, due to the uniqueness of these units, some investigation should occur at these units.

SWMU 43 may be replaced by 43 A-I which represent suspected spill locations along the product pipe lines. All releases from these pipe lines should documented in the RFI Phase I workplan along with plans to investigate for any contamination associated with these releases.

2.3 ACTION TO BE TAKEN IN RESPONSE TO COMMENT

- 1) Delete SWMUs 22, 23D, and 28 from the list of SWMUs of concern in condition IV.B.1.
- 2) A new condition IV.E will be added to the permit to require an investigation at the East Tank Farm and the West Tank Farm. Potential groundwater concerns at these units will be addressed under the requirements of Condition IV.B.1b. See Section 3.3, 4.1, 4.3 below for further discussion of this groundwater issue.
- 3). SWMU 43 will be replaced by SWMU 43 A-I in Section VI.B.1 of the permit.

3.0 RFI APPROACH

This Section discusses and evaluates UNO-VEN's comments on carrying out the RFI as set forth in Condition IV.B and Attachment C of the draft permit.

3.1 DRAFT PERMIT'S APPROACH TO COMPLETING THE RFI

The RFI procedures in the draft permit called for three phased approach in order to facilitate the investigation and review of the investigation data:

- (1) The first phase of the RFI consists of an initial evaluation to determine if a release of hazardous waste/constituents has occurred from the unit. Typically, the Phase I investigations focus on: (1) the potential release(s) to soil; (2) evaluation of release(s) to air and surface water in some cases; and (3) an evaluation of groundwater if there are SWMUs of concern that are land disposed units. The results of the Phase I should determine whether there has been a release from a given SWMU. If it appears as though a release has occurred, the RFI should move into the second phase.
- (2) Phase II is to determine the extent of the contamination detected during the first phase of the RFI. The results of the Phase II investigation may indicate that contamination is limited to a specific media of concern, soil, for example. In such cases, the Agency and the owner/operator will have to make a determination of whether corrective measures are necessary based upon the potential threat to human health and the environment. If it is determined that additional media have been impacted, contaminant leaching from soil into groundwater, additional investigations will be required.
- (3) Phase III of the RFI specifically addresses contaminant detection and extent determination for groundwater. This phase is only necessary when it has been determined that groundwater may have been or has been impacted by SWMU operations. If the results of the groundwater monitoring program detect contamination above the applicable groundwater standard, a determination of the horizontal and vertical extent and rate of migration of the contaminant plume must be conducted. Based upon the results of this third phase, the owner/operator and the Agency will determine the necessity to institute corrective measures at the site.

In addition, interim measures may be conducted on SWMUs during the RFI. Such measures may be taken to prevent continuing releases or mitigating the results of a release prior to completion of the RFI and implementation of a formal corrective measures plan. Plans to complete these interim measures are to be developed and submitted to Illinois EPA for review/approval prior to implementing them. Condition IV.H of the draft permit specifies the actual procedures for carrying out any desired interim measures.

3.2 UNO-VEN'S PROPOSED APPROACH FOR COMPLETING THE RFI

UNO-VEN proposed an entirely alternative procedure for conducting the RFI. They provided specific comments on Section IV, Subsection B and Attachment C and also proposed modified wording to portions of Section IV, Subsection B and an entirely new Attachment C which reflected their comments. A general discussion of their proposed procedure follows.

To focus the corrective action process on the SWMUs that pose the highest potential risk for release and impact to human health and the environment, UNO-VEN reviewed the information available for each SWMU. From this information, the SWMUs were classified into three groups on the basis of their proximity to the facility property line, their release histories, and their estimated probability of release. The three SWMU groups are defined as follows (See Table 1 for listing of these SWMUs. Note that SWMUs 22, 23D, 28, 41, 42 and 43 are not included in this table as UNO-VEN proposed that they be deleted from the permit -- see Section 2.1 above):

- Group 1, High Priority: SWMUs within 200 ft. of the facility perimeter and/or SWMUs within the facility that have known releases or have the highest potential for a subsurface release.
- Group 2, Medium Priority: The remaining SWMUs that have low potential for release or that are not on the perimeter and have a medium potential for release.
- Group 3, Inspection and Maintenance: Facility-wide SWMUs (sewers and open flow ditches) that require regular inspection and maintenance.

Table 1 shows the ranking of the SWMUs listed in the Permit (except for SWMUs 22, 23D, 28, 41, 42 and 43 which UNO-VEN proposed be deleted as discussed in Section 2-1 above). The RFI will be implemented by SWMU group to address the SWMUs of highest risk first, followed by the lesser priority SWMUs. The schedule for each group will have a different focus based on this prioritization.

The objective of a Phase I RFI is to determine whether a release has occurred from the SWMU. A literature search will be conducted, as necessary, to further characterize the SWMU. For example, the physical boundaries of several SWMUs are not well defined, but should be for a proper investigation. The following items should be gathered during the search:

- Employee interviews;
- Visual observations (unit and surroundings);
- Engineering drawings of units and process lines;
- Release pathways;

- Receptors;
- Materials and wastes managed;
- Operating history;
- Release history;
- Results of previous investigations; and
- Extent of interim measures (e.g., excavation).

This information will be used to focus the investigation on the areas and contaminants of concern, and develop the site-specific sampling plan.

The sampling plan for a Phase I investigation should definitely determine whether a release has occurred. Field screening can be used to focus the sampling to areas of contamination. Samples should be collected to identify the contaminants of concern at the SWMU. The depth to groundwater and the potential for impact should be determined during Phase I. The objective is to gain the information needed to determine whether a release has occurred and, if so, to proceed readily to a Phase II investigation.

The objective of the Phase II investigation is to define the nature and extent of contamination from a known release. For the SWMUs that proceed directly to Phase II, some components of the literature search will be conducted to better characterize the SWMU. The sampling and analysis plan will be developed from the information in the literature search, the Phase I investigation, and/or previous investigations or sampling results at the SWMU. Another key objective is to determine the impact to groundwater at the site. The Phase I and II investigations may occur in the same field effort depending on the approach utilized for the RFI.

The Phase II RFI will focus on the contaminants of concern (above TACO levels) identified in Phase I. The sampling plan will be guided by the suspected release pathway, the known extent of contamination, and the potential impact to the groundwater. Soil, groundwater, and surface water sampling will be addressed in Phase II, as appropriate. UNO-VEN may elect to conduct interim measures to address known releases at the SWMUs.

A more detailed discussion of how each group of SWMUs will be handled during the RFI is as follows:

1. The group 1 SWMUs will be investigated in a Phase I/Phase II approach. A Phase I investigation will be performed for all SWMUs except for those with known releases, which will proceed directly to Phase II. The Group 1 Phase I/II RFI Workplan will be submitted within 90 days of the effective date of the permit. The objective of the investigation will be to determine whether a release has occurred and, if so, to what extent.

- 2. Existing information suggests that the Group 2 SWMUs pose no significant threat to human health and the environment. UNO-VEN proposes that the Group 2, Phase I investigation begin after the Phase II investigation for Group 1. This allows RFI efforts and UNO-VEN to concentrate their resources on the highest priority SWMUs first. The Group 2, Phase I RFI Workplan will be submitted 90 days after the submission of the final Group 1, Phase II RFI report.
- 3. The Group 3 SWMU investigations use a different philosophy than for Groups 1 and 2. The Group 3 SWMUs are unique in that they include approximately 19 miles of process water and storm water conveyance systems and are not discrete units. To address these SWMUs, UNO-VEN recommends an Inspection and Maintenance Plan, which would be prepared within 120 days of the effective date of the permit.

SWMUs 38, 39 and 40 are the process sewer system, the stormwater sewer system, and the open flow ditches, respectively. There are nearly 19 miles of line within these units. To evaluate these process water and storm water conveyance systems for releases or potential releases, UNO-VEN proposes an inspection and maintenance program. Given the nature of these units and the length of pipe, investigating adequately for release by traditional intrusive methods would be impractical and problematic.

The inspection and maintenance program will first focus on the process sewer system, as it presents the greatest concern. The program will then evaluate open-flow ditches followed by the storm sewers. The workplan will outline the approach for all three SWMUs.

The process sewer system will be evaluated systematically over a number of years. The sections of line that have greater potential for a release will be evaluated first. The inspection and maintenance program will consist of the following components:

- Literature search/system evaluation;
- Waste and pipe material compatibility evaluation;
- Sewer inspection plan;
- Maintenance protocols; and
- Response and corrective action procedures.

The literature search will collect information on the existing lines, materials of construction, source and characteristics of process water, past maintenance and management practices, and known releases. From information collected during the search, an analysis can be performed on the sewer compatibility with the process stream flowing through the sewer.

A sewer inspection plan will be developed to monitor the integrity of the sewer systems, avoid crisis situations, and continue to provide uninterrupted flow of the systems. Primary (main) lines that carry the most of the flow will be evaluated first, followed by the branch lines and so on. Techniques such as smoke testing and in-line video inspection can be used to evaluate the integrity of the system. It is expected that a 10-year cycle will be used to inspect the entire system. The plan will address the cleaning and inspection techniques, evaluation criteria, and documentation required for the inspections.

Maintenance protocols and methods will ensure that sewer maintenance is handled in an environmentally safe fashion. This will include an engineering evaluation for repair, testing procedures, and documentation. Guidelines for response and corrective action for detected releases from the sewer systems will be provided.

The inspection and maintenance program also will address the open flow ditches and storm sewer system. A literature search will be performed to identify the portions of these systems that have potentially handled process waters and other solid waste. A visual inspection of the open-flow ditches and evaluation of the storm sewer line's potential for release will allow the program to focus on the areas most likely to have a potential impact.

In addition to the investigation of soil and groundwater contamination at individual SWMUs, the permit specifies that the RFI must include the investigation for potential releases to groundwater on a more area-wide basis. UNO-VEN does not feel that facility-wide groundwater monitoring is appropriate and will address groundwater investigation and monitoring on a SWMU-by-SWMU basis. A perimeter approach will be evaluated after the Phase I/II investigation. This evaluation would consider whether the current monitoring well system is adequate for monitoring groundwater down gradient of potential releases.

3.3 IEPA ACTION IN RESPONSE TO COMMENTS

Illinois EPA has reviewed UNO-VEN's proposed procedure for conducting the RFI and has found that it will provide a adequate means of characterizing any releases from the SWMUs of concern at the facility. Thus, their proposed language for carrying out an RFI will replace IEPA's language in Section IV.B and Attachment C with exceptions:

- 1. The requirements for the Inspection and Maintenance Plan for SWMUs 38, 39 and 40 were revised somewhat and taken out of the scope of work for the RFI. Rather, this plan was given its own unique subsection in Section IV (see Section IV.D).
- 2. The proposed permit language in Section IV regarding Supplemental RFI investigations was combined with the Phase II RFI investigation language. This was done because the

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- procedures and workplans for Supplemental Phase I investigations and actual Phase II investigations are very similar in nature.
- 3. The requirements for evaluating the East Tank Farm and West Tank Farm have been separated from the overall RFI effort and are identified in Condition IV.E. In addition, Condition IV.B.1.d has been modified to require that a groundwater monitoring program downgradient of the East Tank Farm be evaluated as well as the perimeter groundwater monitoring program. See also the discussion in Section 4 below regarding this issue.

4.0 GROUNDWATER EVALUATIONS (AREA-WIDE)

4.1 DRAFT PERMIT APPROACH

Condition IV.B.2 of the draft permit required that Phase I RFI efforts address potential releases to groundwater on an area-wide basis. This effort was proposed because the refinery is quite old and was rebuilt in the early 1970s. To conduct this area-wide investigation, it was proposed that UNO-VEN divide the property into several subareas (the South Plant Refinery, the East Tank Farm, the West Tank Farm, the North Plant [includes Needle Coker and Petrochemical Complex] and the Canal Dock).

4.2 UNO-VEN'S PROPOSED APPROACH

Several comments were made regarding this area-wide groundwater investigation. Specifically, UNO-VEN does not feel that facility-wide groundwater monitoring is appropriate at this time and will address groundwater investigation and monitoring on a SWMU-by-SWMU basis. They propose to conduct a perimeter approach to evaluate groundwater after the Phase I/II investigation. This evaluation would consider whether the current monitoring well system is adequate for monitoring groundwater down gradient of potential releases. Proposed wording to this effect is set forth in their proposed Condition IV.B.1.d.

4.3 CONCLUSION

UNO-VEN's alternative language for groundwater investigations in general during the RFI is also acceptable, except that the required evaluation set forth in Condition IV.B.1.d must address the East Tank Farm overall as well as the perimeter of the facility. The reason for this additional evaluation is that the East Tank Farm is located on a bluff approximately 100' above the remainder of the facility.

5.0 GROUNDWATER MANAGEMENT ZONE (GMZ)

5.1 DRAFT PERMIT APPROACH

The groundwater around and beneath the stormwater basins was designated as solid waste management unit 33 in Section IV of the draft permit and also was included in section IIIa. of the draft permit.

5.2 UNO-VEN'S APPROACH

UNO-VEN requests that, since the groundwater around and beneath the stormwater basins has been designated a solid waste management unit (SWMU 33), it not be regulated under other portions of the permit (including Section IIIa). Additionally, UNO-VEN is uncertain of the reasoning to designate a GMZ as a SWMU and under which regulatory provision (i.e., RCRA or 35 IAC 620) it would fall under. UNO-VEN suggests that the groundwater monitoring plan specified in this section incorporated into the Group 1 Phase I/II workplan for the SWMU to undergo long-term monitoring as prescribed. The change in designation from a GMZ which is regulated under 35 IAC 620, to a SWMU, would allow risk-based cleanup and monitoring standards (such as TACAO). UNO-VEN requests the opportunity to discuss this issue with the Agency before finalization of the permit.

5.3 CONCLUSION

The investigation of the GMZ (SWMU 33) will proceed under the general RFI process as a Group I, Phase II SWMU.

The current monitoring and reporting requirements for the Groundwater Management Zone around and beneath the storm water basins (SWMU 33) shall continue, in accordance with Illinois EPA's July 7, 1994 letter to Mr. L.D. Erchull of the UNO-VEN Company, until replaced with other actions during the corrective action efforts carried out under this permit.

6.0 CORRECTIVE MEASURES PROGRAM

Section 1.0 of this document contains a brief description of the overall corrective action program generally implemented by Illinois EPA. It also points out that UNO-VEN provided many comments on the procedures described in the draft permit which should be followed to carry out this program. This Section discusses and evaluates UNO-VEN's comments on the corrective measures portion of this program.

6.1 DRAFT PERMIT CMP APPROACH

The Draft Permit recommended that the Corrective Measures Program be carried out in the following five phases.

- 1. Phase I should consist of (1) development of final cleanup objectives, (2) identification of those SWMUs requiring corrective action and (3) a preliminary evaluation of the corrective action alternatives available for each SWMU requiring corrective action.
- 2. Phase II should consist of development of a conceptual design of the corrective action chosen for each SWMU remedial system(s) and/or institutional controls.
- 3. Phase III should consist of development and submission of the final design plans for the corrective action, including operation/maintenance plans and plans for the actual installation of the desired correction action.
- 4. Phase IV is the actual construction/installation of the selected corrective measure.
- 5. Phase V CMP is operation, maintenance, and monitoring of the selected corrective action to ensure it is properly protecting human health and the environment.

Condition IV.c and Attachment D then described the procedures which should be followed in carrying out the corrective measures program.

6.2 UNO-VEN'S COMMENTS

1. UNO-VEN's comments on the draft requirements for a corrective measures program can be grouped into three main categories: (1) detailed evaluation of the corrective measure alternatives for each SWMU and (2) development of a conceptual design of the corrective action chosen for each SWMU including remedial system(s) and/or institutional controls.

- 2. Proposed language to complete the operations and maintenance plans as part of phase IV instead of phase III. They stated that operation and maintenance plans are more typically prepared at the end of the construction phase of the corrective action because modifications and final details may change between the final design and the constructed system. It is proposed that the operation and maintenance plan be submitted with the construction report at the completion of Phase IV.
- 3. Comments regarding certain minor items in Condition IV.c and Attachment D.

6.3 IEPA EVALUATION OF COMMENTS

In response to UNO-VEN's comments regarding the procedures for implementing a corrective measures program, Illinois EPA offers the following:

- 1. Phase II of the Corrective Measures Program should include selection of the corrective measure to be taken and developing a basis for completing the final design of the measure. UNO-VEN should complete this in one step and not have both a Phase II CMP Report and Conceptual Design Report for Phase II. Thus no change will be made to the draft regarding Phase II of the CMP.
- 2. Operation and maintenance (O&M) plans should be an integral part of the design of construction plans. Thus O&M plans should be completed along with the Phase III design plans. As such, the requested change will not be made to the Phase III and IV requirements regarding development of O&M plans.
- 3. Beyond the specific comments above, the permit has been revised to reflect the proposed changes to the other portions of the permit pertaining to the corrective measures program.

7.0 CLEANUP OBJECTIVES

7.1 DRAFT PERMIT APPROACH

The draft permit proposed that "site specific cleanup objectives" or "preliminary values" be used to determine if further investigation or remediation was necessary at a SWMU.

7.2 UNO-VEN'S PROPOSED APPROACH

Industrial Tier 1 levels under the Tiered Approach to Corrective Action Objectives, IAC Part 742, (TACO) will be proposed as the release criteria. Soil concentrations measured above Tier 1 industrial levels and background upper tolerance limits for metals and above the Tier 1 industrial levels for organic compounds will indicate a release at a SWMU. Groundwater concentrations measured above Tier 1 levels for Class I groundwater will designate a release from the SWMU. The TACAO levels will be used to delineate the vertical and lateral extent of the release for both soil and groundwater at the individual SWMUs. These levels are for investigation purposes only and *are not* the proposed remediation criteria. Site-specific cleanup objectives will be defined later in the process.

7.3 CONCLUSION

If industrial/commercial Tier 1 values are used, then it will be necessary to place restrictions on the deed requiring that the facility be used only for industrial/commercial activities in the future. UNO-VEN should consider using residential Tier 1 values and then if contamination is found in excess of these values propose Tier II values for that SWMU. This will keep UNO-VEN from having to place a facility wide deed restriction.

8.0 RESPONSE TO COMMENTS NOT ADDRESSED IN SECTIONS 3 THRU 7 ABOVE

8.1.1 UNO-VEN's COMMENT

A new condition IV.A.3 should be added and was proposed to include the possible operation of a Corrective Action Management Unit (CAMU) in conjunction with the RCRA Facility Investigation described in this section. This language has been developed to ensure that a CAMU may be constructed and operated as needed in support of the corrective action program. At the time that UNO-VEN moves forward with design and operation of the CAMU, this designation language will be modified to reflect the CAMU design, construction, operation, and management programs as approved by the IEPA. This permit modification will be subject to the appropriate documentation submittals, review and comment periods, and technical approval by the IEPA.

8.1.2 IEPA RESPONSE

IEPA agrees that such a comment may be placed in the permit, given the fact that UNO-VEN may desire in the future to construct a CAMU. Minor edits to the proposed text were made.

8.2 COMMENT ON ITEM III.C.3 OF ATTACHMENT C

8.2.1 UNO-VEN'S COMMENTS

It is proposed that inspections be performed for the drum staging areas and cleaning pads to evaluate their structural integrity for the intended use of these units. The workplan will define the standards and procedures that will be followed considering the references specified in the permit. A registered professional engineer will inspect the integrity of the pads for the intended use of these units. The engineer will recommend corrective action to prevent releases from the SWMU as appropriate (such as sealing cracks with epoxy or adding controls), and will certify that, with appropriate adjustments, they are suitable for continued use.

It is proposed that no samples be collected beneath the pads until the units begin closure. Samples will be collected outside of the one pad without curbing (SWMU 25C) to determine whether overflow releases have occurred. When these units are closed, the pads will be removed and the area will be investigated for potential releases as part of the closure.

8.2.2 IEPA RESPONSE

If the integrity inspection reveals that releases may have occurred to the environment, then soil sampling below the units will be required. The text that requires soil sampling if it is found to be necessary by the integrity inspection was added back to the permit.

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Table 1 Listing/Grouping of SWMUs Proposed to be Investigated by UNO-VEN in the RFI

<u>SWMU</u>	<u>Name</u>	Environmental Media of Concern	Initial <u>Phase</u>
Group 1			
2A-E	Former Process Wastewater Line ("Big Inch")	Soil	I
7	Interceptor Trench; Canal Dock	Soil	I
11A	Recycle Tanks; 11A - Mobil Interface Tank 436		I
17	Intermittent Stream/Stormwater Conveyance System	Soil/Surface Water	I
21	Vertical Oil Storage Tanks at the Stormwater Basin (SWB)	Soil	I
34	French Drain System	Soil	I
36	Former USTs Located at South Plant Administration Maintenance Area	Soil/Groundwater	I
37	Former USTs Located near WWTP Outfall to Chicago Sanitary & Ship Canal	Soil/Groundwater	I
3	Former North Plant API Separator and Above Ground Corrugated Plate Separator	Soil	II
4	Hot Oil Line, Seneca Petroleum Storage Tank	Soil	II
11B	Recycle Tanks; 11B - 301 Tank;	Soil	II
12	Tank 201 and Proximate Area	Soil	II
19D	Former Sludge Drying Areas	Soil	II
24	Former API Separator	Soil	II
30	Former Primary Light Oil (PLO) Underground Storage Tank (UST) at Fuels Loading Rack Ar	Soil/Groundwater rea	П
31A-E	Former Underground Storage Tanks located at Former Service Station and Active Solvent Loading Rack Area	Soil/Groundwater	Π
32	Former Process Blending UST at the Process Blend Center	Soil/Groundwater	II
33	Groundwater Monitoring Zone around and beneath the Storm Water Basins	Groundwater	II

Group 2

1	Former Empty Drum Storage Area	Soil (Integrity Inspection)	I
5	Former Dump Area for Lime Sludge,		
	Seneca Tank Location	Soil	I
10	North Plant Heat Exchanger Bundle Cleaning Pad	Soil (Integrity Inspection)	Ι
13	Sludge Drying Area	Soil	I
15A-B	Wastewater Treatment Sludge Decant Basins within Land Treatment Facility	Soil/Surface Water	I
15C	Wastewater Treatment Sludge Decant Basins within Land Treatment Facility	Soil/Surface Water	I
16	Sludge Application Area	Soil	I
18	Waste Staging Area	Soil	I
19A-C	Former Sludge Drying Areas	Soil	I
20	Active Drum Staging Area	Soil (Integrity Inspection)	Ι
25A-B	Heat Exchanger Bundle Cleaning Pad	Soil (Integrity Inspection)	I
25C	Supplementary Heat Exchanger Bundle Cleaning Pad Cleaning Building	Soil (Integrity Inspection)	I
35	Red Dye Spill Area	Soil	I
43A-I	Suspected Spill Locations Along the Product Pipe Lines	Soil	I
Group 3			
38 39 40	Process Sewer System Storm Sewer System Open Flow Ditches	Soil/Surface Water Soil/Surface Water Soil/Surface Water	

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Response to Additional Questions and Comments on the Corrective Action Portion of the Revised Post-Closure Permit

This is in response to UNO-VEN's additional questions and comments submitted June 4, 1997 on the corrective action portion of the revised draft post-closure permit. The facility was issued a Draft Hazardous Waste Management Post Closure Permit September 26, 1996. UNO-VEN then submitted comments to the draft permit on January 13, 1997. The Illinois EPA responded to these comments in a document delivered to Mr. Kevin Moss May 5, 1997 which included a revised draft post-closure permit and a detailed response to their initial comments.

The corrective action portion of the permit includes Section IV and Attachments C and D. The below modifications should be the final revisions to this permit. Illinois EPA responses to UNO-VEN's questions or comments are included in the below table in bold and italicized text.

No.	Cite	Comment/Question	
1	IV.B.1.a	The second page of the SWMU list was not included in the revised permit. It is requested that the complete SWMU list be provided for review.	
	Response	A complete SWMU list was faxed to UNO-VEN June 9, 1997; this complete list is included in the revised draft post-closure permit.	
2	IV.B.1.a	The description of SWMUs 43A-I includes a reference to a document entitled "RCRA Corrective Action and RFI Approach for UNO-VEN SWMUs." It also states that the letter was submitted under a December 23, 1996 letter from Joel Garretson of UNO-VEN.	
	,	Joel Garretson is associated with Unocal. The letter was also signed by Claude Harmon of UNO-VEN (CITGO now). It is requested that Mr. Harmon's name be referenced in the permit in addition to Joel Garretson of Unocal.	
	Response	Mr. Harmon's name will be referenced in the permit in addition to Joel Garretson of Unocal.	
3	IV.B.1.d	The revised permit requires that a perimeter approach be considered after the initial Group 1 investigation for two areas: "1) the East Tank Farm and 2) the remainder of the facility located beneath the bluff and the Chicago Ship and Sanitary Canal."	

No.	Cite	Comment/Question
		A clarification of this condition is requested, specifically as to why these two areas are specified. It is requested that this condition be reworded to more simply require the evaluation of a perimeter approach to include the entire facility boundary (which would include the east tank farm and canal perimeter). Additionally, it is unclear what significance the reference to the CSSC has in this statement.
	Response	The text used to describe the remainder of the facility (i.e., " located beneath the bluff and the Chicago Ship and Sanitary Canal") will be removed from the above mentioned condition of the permit. It should be noted that particular attention should be made to the East Tank Farm during this investigation due to the geology which underlies it and because it is a major storage area. See also response to Comment 8 below for a further discussion of the perimeter groundwater monitoring program required by the permit.
4	IV.B.6, B.7, B.8,	These conditions refer to a "Group 1 Phase II Supplemental Phase I" RFI (or investigation).
	B.9, B.9.d,f	This terminology is unclear. It is suggested that the references be revised to say "Group 1 Phase II or Supplemental Phase II."
	Response	The Permit will be changed to reflect the above mentioned comment.
5	IV.C.4	This condition states that Phase IV of the CMP consists of the actual construction/installation of the selected corrective measure <u>and</u> includes the preparation of the operation and maintenance plans.
		This condition is in conflict with Attachment D which states that the operation and maintenance plans are to be prepared during Phase III of the CMP. It is suggested that the Phase III description be revised to add the operation and maintenance plans and, correspondingly, that the reference to the plans be removed from the Phase IV description.
	Response	The Phase III description will include operation and maintenance plans and reference's to the plans will be removed from the Phase IV description.
6	IV.D.1.f	This condition refers to "Items 1 through 5 above."
		There are no Items 1 - 5 above Condition IV.D.1.f. It appears the reference may be to Items a through f. Please clarify this reference.
	Response	The reference to Items 1 through 5 will be replaced with Items a through f.

No.	Cite	Comment/Question
what por historica		This condition requires that a file and literature search be performed to determine what portions of the storm sewer system and open flow ditches may have historically received process wastewaters and/or other solid wastes and that the results be included in the inspection and maintenance plan.
		It is unclear what information is required from this condition and what actions will be taken based on this information. A clarification of this condition is requested. Additionally, this condition is related to Items IV.D.1.a to IV.D.1.f in that it is background information to be collected during the literature search. It is requested that this condition be included under IV.D.1.f. Since all information may not be available at the time the inspection and maintenance plan is prepared, Condition D.1.f would allow for this information to be gathered during the implementation of the plan.
	Response	This condition will be moved to after Condition IV.D.1.f. UNO-VEN should include information that is available on what portions of the storm sewer system and open flow ditches may have historically received process wastewater and/or other solid waste.
search) be performed for the east and west tank farms. The that if evidence of a past release or potential for release is for investigation, then UNO-VEN shall address the release und		This condition requires that an investigation (berm inspection and literature search) be performed for the east and west tank farms. The last sentence requires that if evidence of a past release or potential for release is found during this investigation, then UNO-VEN shall address the release under: (1) the general RFI procedures set forth in Condition IV.B; or (2) the procedures set forth in Condition IV.G.
		Clarification of the condition is requested. It is assumed that each tank farm will be considered a SWMU and the tank farm boundaries are the unit boundaries. It is requested that RFI activities at the tank farms, if required, be addressed under the Group 1 Phase II (or Supplemental Phase II) investigation.
	Response	Condition IV.E requiring specific evaluation of the East and West tank Farms will be deleted from the permit. However, Condition IV.B.1.d will be modified to require perimeter groundwater monitoring programs for each of these tank farms. The Illinois EPA feels it is indeed necessary to conduct a groundwater investigation at each of these two tank farms as they are large potential sources of releases to the groundwater.

1978030004 -- Will County ILD041550567 RCRA Permit Log No: B-162

No.	Cite	Comment/Question
9	C.III.E.5.c	This condition requires that a detailed discussion of all previous groundwater monitoring efforts be included in the Group 1 RFI work plan. This discussion must include: 1) location maps for the wells, 2) construction details of the wells, 3) summary of all previous groundwater monitoring efforts, and 4) detailed evaluation of the collected data.
		Items 1 and 2 can be incorporated into the Group 1 RFI work plan. However, the level of effort to summarize and evaluate the monitoring data at the facility is a fairly extensive task at the work plan stage. This effort appears to be a more appropriate task for the RFI report. Therefore, it is requested that this information be a requirement of the RFI report rather than the work plan. This data and evaluation, in addition to the RFI results, will directly support the evaluation of a perimeter system, as required in the Group 1 RFI report. For greater understanding of the Agency objectives, a clarification is requested on the level of effort and conclusions required for the evaluation of the monitoring results.
	Response	The summary of all previous groundwater monitoring efforts, and detailed evaluation of the collected data will form a foundation of what to do in the RFI Phase I Investigations. If necessary UNO-VEN may have more time to submit the above workplan. No changes will be made to the permit.
10	D.3.0	This condition describes the requirements of Phase II of the CMP. Phase II includes the detailed evaluation of options, selection of a corrective measure, and the conceptual design of the selected remedy (all included in the conceptual design report—CDR).
		As written, the permit requires that the options be considered, a remedy selected, and the conceptual design prepared within one step. The Agency can then approve, approve with revisions, or require that a new corrective measure be selected. If the last option is used by the Agency, then the conceptual design prepared for the selected remedy would be wasted. It is requested that the requirements of the conceptual design be clarified. It is unclear what level of design is required for the CDR.

No.	Cite	Comment/Question
	Response	The contents of the Conceptual Design Report is outlined in D.3.1 through D.3.12. Potential Corrective Measures are to be developed in Phase I of the CMP. UNO-VEN should know by the time of Phase II of the CMP if a proposed remedy will not be approved.
		The conceptual design report should contain a general description of the selected remedial action and a description of the procedures which will be followed to complete the detailed design of the selected action. General drawings should also be included in this report to give a conceptual idea of the physical attributes of the selected action.
11	D.6.0	The first sentence requires that the corrective measure must be operated, maintained and monitored in accordance with the approved plan and specifications.
		It would appear that the operations and maintenance plans detail how the corrective measure is to be operated, maintained, and monitored. The plans and specifications describe the construction and installation of the corrective measure. It is suggested that this condition be reworded to reference the operations and maintenance plans.
	Response	This condition will be reworded to reference the operations and maintenance plans.
12	D.6.0/2	This condition requires that the corrective measure be described and the significant equipment identified. The second sentence requires the same thing.
		It is requested that the second sentence be removed, because it is redundant with the first sentence.
	Response	The second sentence will be removed.
13	General	Based on a review, it appears that all references to the GMZ (SWMU 33) have been removed from the permit (originally Section IIIa). Please clarify the status of the GMZ with respect to the permit.
	Response	The investigation of the GMZ (SWMU 33) will proceed under the general RFI process as a Group I, Phase II SWMU.
14	General	There appear to be a few typographical errors in the permit text. The specific comments are summarized in a separate table.
	Response	The typographical errors will be repaired.

1978030004 -- Will County ILD041550567 RCRA Permit Log No: B-162

FINAL NOTE: A CONDITION MAY BE ADDED TO THE CORRECTIVE ACTION PORTION OF THE PERMIT WHICH CLEARLY INDICATES THAT ALL ILLINOIS EPA ACTIONS UNDER THESE REQUIREMENTS ARE SUBJECT TO THE APPEAL PROVISIONS OF SECTIONS 39 (A) AND 40 (A) OF THE ILLINOIS ENVIRONMENTAL PROTECTION ACT.

1978030004 -- Will County ILD041550567 RCRA Permit Log No: B-162

No.	Cite	Comment
1	IV.A.3	There is an unnecessary comma after storm water in the first sentence.
2	IV.B.3.b	There is a relic redline in the first sentence.
3	IV.B.5.c	There is a relic redline in the first sentence.
4	IV.B.9.d.iv	There is a relic redline in the first sentence.
5	IV.B.9.d.v	There is a relic strikeout (is) in the first sentence.
6	IV.H.3, H.5	The reference to "Conditions IV.B through IV.D" should be revised to "Conditions IV.B through IV.F" to reflect the additions of Conditions D and E.
7	IV.I.1	The interim measures section is now "Condition J" rather than the referenced "Condition H". A period is missing after " at any point" in the second sentence.
8	IV.I.1, I.2	There is a relic redline in the last sentence (last paragraph of I.1).
9	IV.J.1.b	There is a relic strikeout (.) and redline (;) in the first sentence.
10	C.III	There is an extra comma after "Group 1" in the second sentence of the first paragraph. It appears that the word "SWMUs" is missing at the end of the second sentence.
11	C.III.E.5.a	There is a relic redline (:) in the first sentence.
12	C.III.E.6,7	There is a relic redline in the first sentence
13	C.III.E.6.c.3	There is a relic redline (.) in the last item.
14	C.III.F.1.a to e	There is a relic redline at the front of the condition.
15	C.III.F.1.f	There is a relic strikeout (;) and redline (.) in the first sentence.
16	C.III.F.2	There is a relic strikeout (the) in the first sentence.
17	C.III.F.2.e	There is a relic strikeout (and) in the first sentence.
18	C.III.F.2.f	There is a relic redline in the first sentence.
19	C.III.H	There is a relic redline (.) in the last sentence.
20	D.2.0	There is a relic redline in the last sentence of the first paragraph.

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No.	Cite	Comment
21	D.2.0/6	There is a relic redline in the second sentence.
22	D.4.0/1.e	There is a relic strikeout (t) in the first sentence.
23	D.4.0/2.f	There is a relic strikeout (;) and redline (:) in the first sentence.
24	D.5.0/6	There is a relic redline (.) in the first sentence.
25	D.6.0/2	The second sentence seems to be redundant with the first sentence.
26	D.6.0/5	There is a relic redline in the last sentence.
	Response	The permit will be revised to reflect the changes requested above.

CTB\mls\971815S

Mary A. Gade, Director

2200 Churchill Road, Springfield, IL 62794-9276

217/524-3300

September 26, 1996

CERTIFIED MAIL
7 363 621 040

Mr. Claude Harmon Manager, Operations Environmental UNO-VEN Company UNO-VEN Refinery 135th Street and New Avenue Lemont, Illinois 60439-3659

Re: 1978030004 -- Will County UNO-VEN, Chicago Refinery ILD041550567 RCRA Permit Log No: B-162 Administrative Record File

Dear Mr. Harmon:

Enclosed is a DRAFT RCRA Hazardous Waste Management Post Closure permit and fact sheet. The draft permit is based on the administrative record contained in the Agency's files. The contents of the administrative record are described in 35 Illinois Administrative Code (I.A.C.) Section 705.144. Read these documents carefully. Failure to meet any portion of the permit could result in civil and/or criminal penalties.

Under the provisions of 35 Illinois Adm. Code 705.141(d), the draft permit and administrative record must be publicly noticed and made available for public comment. The Agency must also provide an opportunity for a public hearing. Copies of the draft decision and fact sheet are available for review at the Lemont Public Library. The Agency has not scheduled a public hearing at the current time. However, any interested party may request a public hearing. The public comment period will close on November 14, 1996.

During the comment period, the applicant or any interested party may submit comments to the Agency on the draft RCRA Post-Closure Permit. At the close of the comment period, the Agency will prepare a response to significant comments. Comments on the draft RCRA Post-Closure permit may be submitted to the address identified in the enclosed fact sheet.

The Agency will issue a final permit after the close of the public comment period unless the Agency decides to reverse the tentative decision. The appeal process and limitations are addressed in 35 Illinois Adm. Code 705.212.

If you have any questions concerning this draft permit, please contact Rob Watson, P.E. at 217/524-3300.

Sincerely,

Edwin C. Bakowski, P.E.

Manager, Permit Section

Bureau of Land

ECB:WRW:bj \hbar \96998S.WPD

wrin

Attachments: Fact Sheet

Draft Permit

Elwin C Bhall

cc: USEPA Region V, Hak Cho

Tom Hall, UNOCAL

Gary Cipriano, Geraghty & Miller, Inc.

FACT SHEET DRAFT RCRA POST-CLOSURE Permit UNO-VEN COMPANY, LEMONT, ILLINOIS ILD041550567 STATE ID # 1978030004 POST-CLOSURE Permit LOG NO. B-162

This fact sheet has been prepared pursuant to the requirements of Title 35 Illinois Administrative Code (35 IAC) Section 705.143. The fact sheet is intended to be a brief summary of the principal facts and significant factual, legal, methodological, and policy questions considered in preparing a draft RCRA post-closure Permit. Pursuant to 35 IAC 704.143(a), this fact sheet is sent to the applicant, the public repository established by the Agency, and any person who requests it.

I. INTRODUCTION

The draft post-closure Permit for UNO-VEN Company's Chicago Refinery contains all of the standard conditions required by 35 IAC Parts 702, 703, and 724; and the applicable conditions of 35 IAC Part 724 for the closure and post-closure care of four hazardous waste land treatment units (D81). The Permit requires UNO-VEN to close these units as landfills and then provide at least 30 years post-closure care for the units. In addition, conditions are contained in the Permit that require UNO-VEN to either conduct a closure by removal demonstration for a hazardous waste surface impoundment that was closed in 1986 under 35 IAC 725 standards, or obtain a post-closure Permit for this unit. The UNO-VEN Company's Chicago Refinery is an existing facility that has been operating under the RCRA Interim Status Standards since November, 1980.

On February 4, 1994 the Agency required UNO-VEN to submit a post-closure Permit application. UNO-VEN submitted the application on May 12, 1995. The Agency issued several sets of comments on the application in 1995 and 1996. UNO-VEN provided revised pages to the application in response to the Agency comments. The last response to comments (Revision 4) is dated August 30, 1996. This draft RCRA post-closure Permit is based upon the 1995 application and the revised pages provided by UNO-VEN.

II. DESCRIPTION OF FACILITY

A. General

UNO-VEN's Chicago Refinery is a petroleum refinery with a rated capacity of 153,000 barrels per day. It employs approximately 750 people. The refinery was built in the 1920's. Globe Oil & Refining Co. purchased the refinery in 1928. Pure Oil Company purchased the facility in 1954. Union Oil Company merged with Pure Oil in 1965. The new Chicago Refinery was constructed between 1967 and 1970. Union Oil Corporation (UNION OIL) operated the refinery until 1989 at which time the UNO-VEN Company (UNO-VEN) was formed through a joint venture between UNION OIL and Petroleus de Venezuela, SA (PDVSA). The refinery produces the following major types of products: liquefied petroleum gas, gasoline, petrochemical solvents, aviation turbine fuels, heating oils, diesel fuels, and petroleum coke. According to UNO-VEN's 1995 Annual Report, nine different hazardous wastes are generated at the refinery.

The total acreage of the four land treatment units is 13.5 acres. Area I was opened in 1973 and the remaining three areas were opened in 1980. Wastes were either directly applied to the soil or were dewatered in adjacent decant basins. After dewatering, the solids were then placed on the land treatment areas. After waste was applied, it was disced into the soil.

API separator sludge (K051) was treated at the site until September, 1981. Since that time, only nonhazardous wastes have been applied to the land treatment plots. These nonhazardous wastes included clear well sludge, cooling tower sludge, heavy oil sludge, stormwater basin dredgings and water/wastewater treatment sludges. The majority of the wastes that were land treated were stormwater basin dredgings and water/wastewater treatment sludges. In 1995 UNO-VEN was allowed to temporarily store a small portion of the sludges generated during the closure of the storm water basin on Area I. These sludges will be incorporated into the closure of the land treatment units.

B. Site Description

The UNO-VEN Chicago Refinery is located near the city of Lemont, Illinois. It is bordered to the west and north by the Illinois & Michigan Canal, to the east by Smith Road, and south by 135th Street. The refinery covers approximately 900 acres. Land uses to the north are industrial, to the east are agricultural, those to the south are agricultural and residential.

III. HAZARDOUS WASTE MANAGEMENT ACTIVITIES

A. CLOSURE

This Permit requires UNO-VEN to close the land treatment areas as landfills. First, the areas will be graded to appropriate contours. Some of the sludges generated during the closure of the stormwater basin will be spread out on Areas I and II as part of the subbase. Then, a low permeability soil cover at least two feet thick, plus a vegetative layer, will be placed over all of the land treatment areas. Section I of the Permit contains conditions that are specific to the closure of these units and that implement the regulatory requirements of 35 IAC Part 724, Subpart G.

B. POST-CLOSURE

Following closure, the four hazardous waste land treatment units must be provided with post-closure care for at least 30 years:

<u>Unit</u>	Capacity	Type of Hazardous Waste	Hazardous <u>Waste No.</u>
Area I Area II	5.5 acres 4.2 acres	API Separator Sludge API Separator Sludge	K051 K051
Area III	1.2 acres	API Separator Sludge	K051
Area IV	2.6 acres	API Separator Sludge	K051
	13.5 acres total		

Post-closure Permit conditions require monitoring, maintenance, and record keeping of the hazardous waste management unit(s) described above in accordance with the provisions of the post-closure care plan. Section II of the Permit contains conditions that are specific to the post-closure care of these units and that implement the regulatory requirements of 35 IAC Part 724, Subpart G.

C. CLOSURE BY REMOVAL

In 1986 UNO-VEN closed a hazardous waste surface impoundment that was regulated under the RCRA Interim Status Standards at 35 IAC 725.

The Closure by Removal requirements at 35 IAC 703.121(b) require owners and operators of surface impoundments that certified closure after January 26, 1983 to either obtain a post-closure Permit for these units or demonstrate to the Agency that the closure met the standards for closure by removal or decontamination. The permit requires UNO-VEN to declare which option they wish to pursue.

D. GROUNDWATER PROGRAM

Contamination has been detected in the groundwater at the UNO-VEN Company's Chicago Refinery. Because of localized groundwater contamination, an area under the Storm Water Basin has been approved as a Groundwater Management Zone (GMZ). UNO-VEN must continue to monitor and perform corrective action in this area. UNO-VEN is also required to monitor the groundwater under the land treatment units at the facility. UNO-VEN will be required to report groundwater quality on both of these areas to the Agency on a routine basis. Permit Conditions in Section III of the Permit are specific to groundwater monitoring and implement the regulatory requirements of 35 IAC Part 724, Subpart F.

E. CORRECTIVE ACTION

This draft Permit requires UNO-VEN to conduct corrective action, as necessary to protect human health and the environment, on any solid waste management units (SWMUs) at the facility found to be releasing hazardous wastes or hazardous constituents. Such activities must be carried out on any unit which was used to manage solid waste, regardless of when the management took place. These corrective action activities include development and execution of: (1) a RCRA Facility Investigation (RFI) to determine whether there has been a release from the SWMUs of concern at the facility and the extent of any detected contamination; and (2) a Corrective Measures Program to provide the corrective action necessary to protect human health and the environment from the releases discovered during the RFI.

The Agency has determined that a total of 35 SWMUs must be evaluated by UNO-VEN as part of the required corrective action activities. SWMUs at this facility include units where wastes were managed in waste piles, surface impoundments, containers and tanks. In addition to the GMZ identified in Section D above, several other areas of groundwater contamination have been detected beneath the facility. The draft Permit requires the facility to investigate, characterize the extent of contamination at each of these SWMUs (including the detected groundwater contamination) and respond with corrective measures, as necessary, to protect human health and the environment.

F. STANDARD PERMIT CONDITIONS

Standard Permit Conditions 1 to 63 are regulatory requirements of 35 IAC, Parts 702, 703 and 724. These conditions are of a general nature and are applicable to all

Hazardous Waste Management facilities regulated pursuant to an Illinois EPA RCRA Permit. These conditions include the effectiveness of the Permit, Permit actions, severability, Permit expiration, monitoring and retention of records, transfer of Permits, and compliance schedules.

IV. CONSIDERED Permit ACTIONS OTHER THAN RCRA

A. Air

The air emissions from a hazardous waste management facility are regulated under RCRA, the Clean Air Act (CAA), Illinois' Environmental Protection Act and State regulations at Title 35: Environmental Protection, Subtitle B: Air Pollution. Under these regulations, the facility is required to obtain a Permit to install or operate any process which is, or may be, a source of air pollutants.

B. Water

A discharge of any waste waters from a hazardous waste management facility into the waters of the State, is required to have a National Pollutant Discharge Elimination System (NPDES) Permit, issued by the Agency under Section 39(b) of the Environmental Protection Act.

V. PROCEDURES FOR REACHING A FINAL DECISION

Pursuant to 35 IAC 705.162(a)(2), the public is given forty-five (45) days to review the application and comment on the draft Permit conditions prior to Illinois EPA taking any final Permitting action on the application for this RCRA Hazardous Waste Management Permit. The comment period will begin on September 30, 1996. The comment period will end on November 14, 1996. When the Agency makes its final Permit decision, notice will be given to the applicant and each person who has submitted written comments or requested notice of the final Permit decision. The Permit will become effective thirty-five (35) days after service of notice of the decision, unless it is appealed, or at a later date if stated in the Permit. In addition, copies of the draft Permit and fact sheet are available for review at the Lemont Public Library in Lemont, Illinois.

Any interested person may submit written comments on the draft Permit, or request a public hearing, by contacting:

> Mara McGinnis, Office of Community Relations, # 33 Illinois Environmental Protection Agency 2200 Churchill Road Post Office Box 19276 Springfield, Illinois 62794-9276 (217) 524-3288

The administrative record can be made available for public inspection at the Illinois EPA Springfield headquarters from 8:30 a.m. to 5:00 p.m., Monday through Friday. The administrative record contains the Permit application, fact sheet, and other supporting documents and correspondence submitted to the Illinois EPA. Inspections of the administrative record must be scheduled in advance by contacting Ms. McGinnis at the above address.

In response to requests received during the comment period or at the discretion of the Illinois EPA, a public hearing may be held to clarify one or more issues concerning the Permit application. A request for a public hearing must be in writing and shall state the nature of the issues proposed to be raised in the hearing. Public notice will be issued forty-five (45) days before any public hearing.

For further information, please contact Mara McGinnis, at the above address, or by telephone at (217) 524-3288.

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Mary A. Gade, Director

2200 Churchill Road, Springfield, IL 62794-9276

RCRA Log NO. B-162

ILLINOIS ENVIRONMENTAL PROTECTION AGENCY

HAZARDOUS WASTE MANAGEMENT

RCRA POST-CLOSURE PERMIT

IEPA # 1978030004 -- Will County USEPA ILD 041550567 UNO-VEN Company Chicago Refinery RCRA Post Closure Permit - Admin. Record File

Issue Date: Effective Date: Expiration Date: DRAFT

Modification Effective Date:

UNO-VEN Company UNO-VEN Refinery 135th Street and New Avenue Lemont, Illinois 60439-3659

A Draft Post-Closure permit is hereby proposed pursuant to the Resource Conservation and Recovery Act, Illinois Environmental Protection Act, and Title 35 Illinois Administrative Code (I.A.C.) parts 702, 703, 705, and 720 through 729 to UNO-VEN (herein known as the permittee). The site is located in the City of Lemont, Will County, Illinois at 135th Street and New Avenue.

This draft post closure permit consists of the conditions contained herein (including those in any attachments and appendices) and applicable regulations contained in the Illinois Environmental Protection Act and Title 35 I.A.C. Parts 702, 703, 705 and 720 through 729 in effect on the effective date of this permit. The Environmental Protection Act (Ill. Rev. Stat., Chapter 111 ½, Section 1039) grants the Illinois Environmental Protection Agency the authority to impose conditions on permits which are issued. This Permit contains 152 pages including Attachments A through I.

If you have any questions regarding this draft permit, please contact Rob Watson, P.E. at 217/524-3300.

Edwin C. Bakowski, P.E. Manager, Permit Section Bureau of Land

ECB:WRW:bjh\96981S.WPD

Attachments

RCRA POST-CLOSURE PERMIT

UNO-VEN COMPANY Chicago Refinery

ILD No. 041550567

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DESCRIPTION OF THE FACILITY

UNO-VEN's Chicago Refinery is a petroleum refinery with a rated capacity of 153,000 barrels per day. The refinery was built in the 1920's. Globe Oil & Refining Co. purchased the refinery in 1928. Pure Oil Company purchased the facility in 1954. Union Oil Company merged with Pure Oil in 1965. The new Chicago Refinery was constructed between 1967 and 1970. UNOCAL Corporation (UNOCAL) operated the refinery until 1989 at which time the UNO-VEN Company (UNO-VEN) was formed through a joint venture between UNOCAL and Petroleus de Venezuela, SA (PDVSA). The refinery produces the following major types of products: liquefied petroleum gas, gasoline, petrochemical solvents, aviation turbine fuels, heating oils, diesel fuels, and petroleum coke. Approximately 9 different hazardous wastes are generated at the refinery. The total acreage of the refinery is approximately 900 acres. The refinery presently employs about 750 people. It is located in the City of Lemont, Will County, Illinois, at 135th Street and New Avenue.

This RCRA Post-Closure permit for the facility (Log No. B-162) is for the closure and post-closure care for the four land treatment areas. The total acreage of the four land treatment areas is 13.5 acres. Area I was opened in 1973 and the remaining three areas were opened in 1980. API separator sludge (K051) which is a hazardous waste was treated at the site until September, 1981. Since that time, only nonhazardous wastes have been applied to the land treatment plots. These nonhazardous wastes included clear well sludge, cooling tower sludge, heavy oil sludge, stormwater basin dredgings and water/wastewater treatment sludges. The majority of the wastes land treated were stormwater basin dredgings and water/wastewater treatment sludges.

Pre-1980 (pre-RCRA) activities at UNO-VEN's Chicago Refinery included the storage and treatment of wastes in containers, tanks, piles, and surface impoundments.

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Page ii

List of Plans and Documents Contained in the Approved Permit Application

Under Illinois solid and hazardous waste regulations, the Permittee has prepared the following formal plans and documents covering various facets of the design, operation and monitoring of hazardous waste management units. The location of each plan or document in the Approved Permit Application is also identified below.

	Plan or Document	Location in the Approved Permit Application
1.	Groundwater Monitoring Program	Section E
2.	Unsaturated Zone Monitoring Plan	Section I, Appendix B of Appendix I-2
3.	Inspection Plan	Section I, Appendix A of Appendix I-2
4.	Contingency Plan	Section G
5.	Training Program	Section H
6.	Closure Plan	Section I, Appendix I-1
7.	Post-Closure Plan	Section I, Appendix I-2
8.	Identification of SWMUs	Section L

SECTION I RCRA CLOSURE

A. INTRODUCTION

The RCRA Post-Closure Permit application addresses the four land treatment units (D81) at the UNO-VEN Company's Chicago Refinery. As of the date of this permit, these units have not been certified closed. Therefore, this Post-Closure permit also includes provisions to close these units as landfills prior to initiating the post-closure maintenance and monitoring period.

B. UNIT IDENTIFICATION

The Permittee shall perform RCRA Closure activities at the following hazardous waste management units in accordance with the Approved Permit Application and subject to the terms and conditions of this permit:

Type of Waste Unit	Unit <u>Name</u>	Size	Description of Hazardous Waste Contained in the Unit
Land Treatment	Area I	5.5 acres	API Separator Sludge (K051)
Land Treatment	Area II	4.2 acres	API Separator Sludge (K051)
Land Treatment	Area III	1.2 acres	API Separator Sludge (K051)
Land Treatment	Area IV	2.6 acres 13.5 acres total	API Separator Sludge (K051)

The locations of these hazardous waste management units (HWMUs) are shown on Drawings 1 and 2 in the Closure Plan (Appendix I-1) of the Approved Permit Application.

C. CLOSURE BY REMOVAL DEMONSTRATION

- 1. The Permittee must either conduct a closure by removal demonstration for the surface impoundment (S04) closed in 1986 under Closure Log No. C-193 or obtain a post-closure permit for this unit. Pursuant to the requirements of Title 35 Illinois Administrative Code (35 IAC) Section 703.121(b), owners and operators of surface impoundments that certified closure after January 26, 1983, (according to 35 IAC 725.215) shall have post-closure permits, unless they demonstrate closure by removal as provided under Sections 703.159 and 703.160.
- 2. Additional investigation and, as necessary, remediation of any contaminated soil/groundwater at the surface impoundment shall be coordinated with the corrective action activities for the entire facility.
- 3. Within 30 days of the effective date of this permit the Permittee shall provide either a work plan for closure by removal demonstration for the surface impoundment (S04) closed under Closure Log No. C-193 or declare their intent to pursue a post-closure permit for this unit.

D. SPECIFIC CLOSURE REQUIREMENTS

- 1. The cover system shall be constructed in accordance with the specifications and plans in Section D-7e, the Closure Plan (Appendix I-1) of the Approved Permit Application, and the conditions in this permit.
- 2. The cover system shall be constructed such that:
 - a. the maximum velocity from a 24-hour 25-year storm (the design storm), as calculated in the Approved Permit Application, shall not exceed 2 feet per second (fps) in the drainage channels.
 - b. an erosion mat is placed along sections of the intermittent stream where the maximum velocity of the flow from a 24-hour 25-year storm (the design storm), as calculated in the Approved Permit Application, could be 3.5 feet per second (fps) or more.
 - c. an erosion mat is placed along sections of the cover that may come in contact with flood waters from a 24-hour 25-year storm. The erosion mat shall extend at least one foot above the predicted flood elevations.

- d. flood waters from a 24-hour 25-year storm (the design storm) shall not come closer than 20 feet from the lateral edge of any of the land treatment areas.
- 3. Sludge from the storm water basin may only be used for fill (sub-base material) in Areas I and II. If the sludge from the storm water basin is used for sub-base material in Area II, it shall not be placed closer than 50 feet from the edge of the boundary of Area II or below the elevation of the flood waters from a 24-hour 25-year storm (the design storm).
- 4. The Permittee shall construct a cover system over the land treatment areas in accordance with the Approved Permit Application and the conditions in this permit. The cover system shall consist of a protective low permeability layer with a vegetative layer placed on top of it.
- 5. The low permeability protective cover system shall be a minimum of two feet thick over all of the areas impacted by hazardous constituents, including those outside of the four land treatment areas as identified in the Site Characterization Report. The low permeability protective cover shall be at least two feet thick above the following perimeter sample locations: LAI-4PS, LAI-12PS, LAII-15PS, LAII-15PS, LAII-17PS, LAII-17PS, LAIII-17PS, LAII-17PS, LAII-17PS, LAII-17PS, LAIII-17PS, LAIII-17
- 6. The protective cover layer shall meet the following specifications when it is inplace covering the four land treatment areas:
 - a. Maximum permeability of 1 x 10⁻⁷ cm/sec,
 - b. Minimum density of 90% (Modified Proctor),
 - c. Minimum moisture content of at least 1 percent above optimum,
 - d. Minimum thickness of 2 feet, and
 - e. Maximum thickness of each lift of 6 8 inches.
- 7. The vegetative layer shall be a minimum of six inches thick.
- 8. The rerouted intermittent stream, diversion channels, and lined waterways shall not be placed over areas containing wastes or hazardous constituents.
- 9. The borrow soils, shall be tested for the parameters specified in the Approved Permit Application at the specified frequencies.

10. The low permeability protective layer shall be tested for the following parameters at the following frequencies during construction:

<u>Parameter</u>	Frequency
Density (nuclear or sand cone)	5 tests/acre/lift (every 250 yd3)
Moisture content	5 tests/acre/lift (every 250 yd3)
Undisturbed (in-place) permeability	1 tests/acre/lift (every 1,500 yd3)
Dry Density (undisturbed sample)	1 tests/acre/lift (every 1,500 yd3)
Moisture content (undisturbed sample)	1 tests/acre/lift (every 1,500 yd3)
Atterberg limits	1 tests/acre/lift (every 1,500 yd3)
Grain size (to the 2-micron particle size)	1 tests/acre/lift (every 1,500 yd3)
Moisture-density curve	5,000 yd3 and all changes in mat'l.

NOTE: The density, permeability, dry density, and one of the moisture content tests must be performed in the field on in-place (e.g. undisturbed) samples of the protective cover layer. The testing procedures for these in-place tests shall also be in accordance with ASTM methodologies.

- 11. The Permittee shall maintain and monitor the groundwater monitoring system in accordance with the Approved Permit Application, the conditions in this permit, and the other applicable regulations of 35 IAC 724 Subpart F (Groundwater Protection) during the closure period.
- 12. The Permittee shall maintain and monitor the unsaturated zone monitoring system in accordance with the Approved Permit Application, the conditions in this permit, and comply with the other applicable regulations of 35 IAC 724.378 during the closure period. The undisturbed zone shall be analyzed for the parameters listed in Attachment I of this permit.

E. INSPECTIONS

- 1. The Permittee shall inspect the components, structures, and equipment at the site in accordance with the Approved Permit Application and the inspection schedule in Attachment B of this permit.
- 2. The date of the first inspection shall be on the effective date of this permit.
- 3. The inspection of the land treatment facility shall be in accordance with the following schedule:

- a. During the <u>Pre-Cover Construction Period</u> (the effective date of this permit until construction of the cover begins): the land treatment facility shall be inspected for all of the items on the Closure Period Inspection Form. The facility shall be inspected monthly and during or immediately after every precipitation event that yields 4 or more inches of rain in a 24 hour period.
- b. During the <u>Cover Construction Period</u> (the date construction of the cover begins until vegetation is firmly established): the land treatment facility shall be inspected for the Cover System Inspection items and Storm Water Management System Inspection items on the Closure Period Inspection Form. The facility shall be inspected for these items weekly and during or immediately after every precipitation event that yields 1 or more inches of rain in a 24 hour period. The land treatment facility shall be inspected monthly for all of the items on the Closure Period Inspection Form.

The Permittee shall continue to follow the inspection procedures in this condition until the Agency approves the closure certification for the four land treatment areas and the conditions for the post-closure period in Section II of this permit are implemented.

F. GENERAL CLOSURE REQUIREMENTS

1. Closure activities for the four land treatment areas shall begin within 60 days of the effective date of this permit. Construction of the cover system shall begin no later than April 1, 1997. Construction of the cover system shall be completed within 120 days from the date construction begins, or by August 1, 1997 whichever is sooner.

When closure is complete the owner or operator must submit to the Agency certification both by the owner or operator and by a qualified, independent professional engineer registered in the State of Illinois that the facility has been closed in accordance with the specifications in the approved closure plan and the conditions in this permit. This certification must be received at this Agency within sixty (60) days after construction of the cover system is completed, or by October 1, 1997, whichever is sooner. These dates may be revised if UNO-VEN finds that additional time is necessary to complete all required closure activities and demonstrates to the Agency that it is attempting to complete closure in a timely manner.

- 2. The closure certification form provided as Attachment F must be used when the Permittee submits the closure certification. Signatures must meet the requirements of 35 Ill. Adm. Code Section 702.126. The independent engineer should be present at all critical, major points (activities) during the closure. These might include soil sampling, soil removal, backfilling, final cover placement, etc. The frequency of inspections by the independent engineer must be sufficient to determine the adequacy of each critical activity.
- 3. The Professional Engineering Practice Act of 1989 (225 ILCS 325/1 et. seq.) requires that any person who practices professional engineering in the State of Illinois or implies that he/she is a professional engineer must be registered under the Professional Engineering Practice Act of 1989 (225 ILCS 325.4). Therefore, any certification or engineering services which are performed for a closure plan in the State of Illinois must be done by an Illinois P.E.

Plans and specifications, designs, drawings, reports, and other documents rendered as professional engineering services, and revisions of the above must be sealed and signed by a professional engineer in accordance with Section 14 of the Professional Engineering Practice Act of 1989 (225 ILCS 325.14).

- 4. As part of the closure certification, to document the closure activities at your facility, the Permittee must submit a Closure Documentation Report which includes:
 - a. The volume of any waste and waste residue removed from each unit. The term waste includes wastes resulting from decontamination activities.
 - b. Scaled drawings showing the horizontal and vertical boundaries from which waste or contaminated soil was removed.
 - c. A description of the method of waste handling and transport.
 - d. The waste manifest numbers (if applicable).
 - e. Copies of the waste manifests (if applicable).
 - f. A chronological summary of closure activities.
 - g. Color photo-documentation of closure. Document conditions at all four land treatment areas and the intermittent stream before, during, and after closure.

- h. Information documenting the results of all required soil sampling/analysis efforts (e.g. samples from the unsaturated zone monitoring requirements and samples associated with construction of the cover system). The goal of this presentation should be to present, in a logical manner, the activities and results associated with the sampling/analysis effort. At a minimum, such a presentation should contain:
 - i. Identification of the reason for the sampling/analysis effort and the goals of the effort.
 - ii. A summary of the analytical data, including tables and all QA/QC data associated with the sampling/analysis effort.
 - iii. A scaled drawing showing the horizontal and vertical location where all soil samples were collected.
 - iv. A description of the soil sampling and analytical procedures, including sample preservation procedures and chain of custody procedures.
 - v. Identification of the test methods used and detection limits achieved, including identification of any sample preparation techniques utilized, dilutions made and interferences encountered during the analysis.
 - vi. A description of all quality assurance/quality control procedures implemented and the results of these efforts.
 - vii. Copies of the laboratory report sheets, including results of the analysis conducted on QA/QC samples. Previously submitted laboratory report sheets may be incorporated by reference.
 - viii. Visual classification of each soil sample in accordance with ASTM D-2488.
 - ix. A discussion of the data, as it relates to the overall goal of the sampling/analysis effort.

- i. Cross sections of the waste, the cover systems, and drainage systems. The cross sections must include all features of the land treatment facility between 3400W to 2000W and 6900N to 5300N. They must show the roads, wells, treatment units, drainage features, the protective layer, the treatment zone, areas where subbase material was added, and the undisturbed soils below the treatment zone. Cross section locations include, but are not limited to, the entire length of the following grid lines 2200W, 2500W, 2600W, 6700N, 6600N, 6350N, 6300N, 6250N, on Drawing 10; and 6000N, 5700N, 2900W, 3200W on Drawing 9.
- j. Scaled drawings that show the horizontal and vertical boundaries where the Storm Water Basin Sludge was used for subbase material. The boundaries of the land treatment areas where the sludge was used must also be shown on these drawings.
- k. As-built drawings of the cover system. All of the following items must be identified on each drawing:
 - i. Final contours;
 - ii. All monitoring wells, piezometers and the unsaturated zone monitoring grid point benchmarks;
 - iii. All culverts, drainage channels, the intermittent stream, and the locations of all erosion control mats;
 - iv. The limits of the land treatment areas;
 - v. The locations of the first round of unsaturated zone monitoring samples;
 - vi. All roads.

- 5. Under the provisions of 29 CFR 1910 (51 FR 15, 654, December 19, 1986), cleanup operations must meet the applicable requirements of OSHA's Hazardous Waste Operations and Emergency Response standard. These requirements include hazard communication, medical surveillance, health and safety programs, air monitoring, decontamination and training. General site workers engaged in activities that expose or potentially expose them to hazardous substances must receive a minimum of 24 hours of safety and health training off site plus a minimum of one day of actual field experience under the direct supervision of a trained experienced supervisor. Managers and supervisors at the cleanup site must have at least an additional eight hours of specialized training on managing hazardous waste operations.
- 6. Financial assurance meeting the requirements of 35 IAC 724, Subpart H for closing the four land treatment units must be maintained until their closure is complete.
- 7. This Section of the RCRA Post-Closure Permit shall supersede all previous RCRA actions related to the RCRA closure of the four land treatment units.

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SECTION II POST-CLOSURE CARE

A. **SUMMARY**

Hazardous waste management units where waste is left in place must receive post-closure care for at least 30 years after the date the certification of closure is approved in writing by the Agency's Bureau of Land. Activities required during post-closure care include, but are not limited to (1) maintenance of final cover, (2) monitoring of the groundwater, (3) providing financial assurance for post-closure activities pursuant to 35 IAC Part 724.

B. UNIT IDENTIFICATION

The Permittee shall provide post-closure care for the following hazardous waste management units, in accordance with the approved permit application and subject to the terms and conditions of this permit:

Type of Waste Unit	Unit Name	Size	Description of Hazardous Waste Contained in the Unit
Land Treatment	Area I	5.5 acres	(K051) API Separator Sludge
Land Treatment	Area II	4.2 acres	(K051) API Separator Sludge
Land Treatment	Area III	1.2 acres	(K051) API Separator Sludge
Land Treatment	Area IV	2.6 acres acres total	(K051) API Separator Sludge

C. MONITORING, MAINTENANCE, & RECORD KEEPING

1. The Permittee shall begin the post-closure care period for the hazardous waste management unit(s) listed in Condition II.B above after completion of closure of the unit(s) as specified in Section I of this permit. The permittee shall continue the post-closure care of these units for thirty (30) years after that date.

- 2. The Agency may include restrictions upon the future use of the site if necessary to protect public health and the environment, including permanent prohibition of the use of the site for purposes which may create an unreasonable risk of injury to human health or the environment. After administrative and judicial challenges to such restrictions have been exhausted, the Agency shall file such restrictions of record in the Office of the Recorder of the county in which the hazardous waste disposal site is located.
- 3. The Permittee shall not allow any use of the units designated in Condition II.B to be used in a manner that will disturb the integrity of the final cover, or any components of the containment system, or the function of the facility's monitoring systems during the post-closure care period unless such use is necessary to protect public health or the environment.
- 4. The Permittee shall implement the approved Post-Closure Plan contained in the Approved Permit Application. All post-closure care activities must be conducted in accordance with the conditions in this permit and the provisions of the approved Post-Closure Plan.
- 5. The Permittee must request a permit modification to authorize a change in this permit or the approved Post-Closure Plan. This request must be in accordance with applicable requirements of Parts 702, 703 and 724 and must include a copy of the amended Post-Closure Plan for approval by the Agency.
- 6. The Permittee shall maintain and monitor the groundwater monitoring system in accordance with the approved permit application, the conditions in this Permit, and comply with the other applicable regulations of 35 IAC 724 Subpart F (Groundwater Protection) during the post-closure period.
- 7. The Permittee shall maintain and monitor the unsaturated zone monitoring system in accordance with the approved permit application, the conditions in this Permit, and comply with the other applicable regulations of 35 IAC 724.378 during the post-closure period.
- 8. The Permittee shall comply with the requirements for landfills as follows:
 - a. Maintain the integrity and effectiveness of the final cover, including making repairs to the cap as necessary to correct the effects of settling, subsidence, erosion, cracking or other events.

Corrective action shall be taken if ponding has been observed, if cracks or erosion channels greater than one inch wide have formed for whatever reason and if gas, odor, vegetative or vector problems arise, if leachate popouts or seeps are present, or if vegetation with tap roots is found to be growing in areas which are not designed to accommodate such.

- b. Prevent run-on and run-off from eroding or otherwise damaging the final cover.
- c. Protect and maintain surveyed benchmarks used in complying with surveying and record keeping requirements.
- 9. The permittee shall not grow food chain crops on the land treatment facility cover system.

D. UNSATURATED ZONE MONITORING

- 1. The Permittee shall implement an unsaturated zone monitoring program in accordance with the plans and specifications contained in the Approved Permit Application and the conditions in this permit.
- 2. The Permittee shall follow the sampling and analysis procedures according to the plans and procedures contained in the Approved Permit Application.
- 3. The Permittee shall monitor the soil immediately below the treatment zone in accordance with the procedures contained in the Approved Permit Application and the conditions in this permit to determine if any hazardous constituents have migrated out of the treatment zone.
 - a. The soil samples shall be collected annually in the second quarter of each year.
 - b. The soil samples shall be analyzed for the parameters listed in Attachment I of this permit.

c. The number of samples collected from each area shall be as follows:

Area	<u>Size</u>	No. of Samples
Area I	5.5 acres	3 .
Area II	4.2 acres	2
Area III	1.2 acres	1
Area IV	2.6 acres	<u>2</u>
TOTAL	13.5 acres	8

- 4. The results of each sampling even shall be submitted to the Agency with the groundwater monitoring reporting requirements found in Condition III.I.2 of this permit.
- 5. The Permittee shall establish a background value for each hazardous constituent referenced in Condition II.D.3 to be monitored in accordance with the Approved Permit Application.
- 6. The Permittee shall determine whether there is a statistically significant change over background values for any hazardous constituent to be monitored under Condition II.D.3 each time the soil core monitoring is conducted. This determination shall be made using the statistical procedures contained in the Approved Permit Application. The Permittee shall make this determination within thirty (30) days after receipt of lab analysis results.
- 7. If the Permittee determines, pursuant to Condition II.D.6, that there is a statistically significant increase of hazardous constituents below the treatment zone, the Permittee shall notify the Agency of this finding, indicating which constituents have shown statistically significant increases, and apply for a permit modification within ninety (90) days to modify the post-closure practices at the facility to maximize the success of degradation, transformation or immobilization processes in the treatment zone.
- 8. The Permittee need not submit the modification request required by Condition II.D.7 if they successfully demonstrates that a source other than the regulated unit caused the increase or that the increase resulted from an error in sampling, analysis or evaluation within the ninety (90) day time period referenced in Condition II.D.7 above.
- 9. Within thirty (30) days of the effective date of the Permit, the permittee shall submit the following:

- a. statistical calculations and background values for each hazardous constituent referenced in Condition II.D.2 to the Agency for review and approval.
- b. A revised sampling grid which includes all of Area II.

E. INSPECTIONS

- 1. The Permittee shall inspect the components, structures, and equipment at the site in accordance with the approved permit application and the inspection schedule in Attachment B of this permit.
- 2. During the Post-Closure Period the land treatment facility shall be inspected for all of the items on the Post-Closure Period Inspection Form in Attachment B to this permit. The facility shall be inspected monthly <u>and</u> during or immediately after every precipitation event that yields 4 or more inches of rain in a 24 hour period.

F. NOTICES AND CERTIFICATION

- 1. After final closure has been certified, the person or office specified in the approved Post-Closure Plan must keep the plan during the remainder of the post-closure period.
- 2. No later than sixty (60) days after certification of closure of the four land treatment areas, the Permittee shall submit to the local zoning authority, or the authority with jurisdiction over local land use, and to the Agency a record of the type, location, and quantity of wastes disposed within each land treatment area. For wastes disposed of before January 12, 1981, the Permittee shall identify the type, location, and quantity of the wastes to the best of his knowledge and in accordance with any records he has kept.
- 3. Within sixty (60) days after certification of closure of the Permittee shall:
 - a. Record, in accordance with Illinois law, a notation on the deed to the facility property -- or on some other instrument that is normally examined during title search -- that will in perpetuity notify any potential purchaser of the property that:
 - (i) The land has been used to manage hazardous wastes;
 - (ii) Its use is restricted under 35 IAC 724.217(c); and

- (iii) The survey plot and record of the type, location, and quantity of hazardous wastes disposed within each cell or other hazardous waste disposal unit of the facility have been filed with the Agency, the County Recorder, and any local zoning authority. This plat must be prepared and certified by an independent professional registered land surveyor.
- b. Submit a certification to the Agency, signed by the Permittee, that he has recorded the notation specified in Condition F.3.a, including a copy of the document in which the notation has been placed.
- 4. If the Permittee or any subsequent owner or operator of the land upon which a hazardous waste disposal unit is located wishes to remove hazardous wastes, hazardous waste residues, the cover, or contaminated soils, then he must request a modification to this post-closure permit in accordance with the applicable requirements in 35 IAC Parts 703, 705 and 724. At a minimum, the owner or operator must demonstrate that the removal of hazardous wastes will satisfy the criteria of 35 IAC 724.217(c).
- 5. No later than sixty (60) days after completion of the established post-closure care period for each hazardous waste disposal unit, the Permittee shall submit to the Agency, by registered mail, a certification that the post-closure care for the hazardous waste disposal unit was performed in accordance with the specifications in the approved Post-Closure Plan. The certification must be signed by the owner or operator and an independent professional engineer registered in the State of Illinois. Documentation supporting the independent registered professional engineer's certification must be furnished to the Agency upon request until the Agency releases the Permittee from the financial assurance requirements for post-closure care.

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SECTION III GROUNDWATER DETECTION MONITORING PROGRAM

A. **SUMMARY**

35 Illinois Administrative Code ("35 IAC") 703.121(b), requires owners and operators of land treatment units that received waste after July 26, 1982 to have post-closure permits, unless they demonstrate closure by removal under 703.159 and 703.160. If a post-closure permit is required it must address applicable 724 groundwater monitoring, unsaturated zone monitoring, corrective action and post-closure requirements.

Parameters monitored during interim status in the uppermost aquifer below the UNO-VEN Company land treatment units indicate that, at the present time, no groundwater impacts have occurred. Therefore, a detection monitoring system shall be implemented at the facility.

B. <u>IMPLEMENTATION</u>

- 1. The Permittee shall implement the groundwater detection monitoring program established herein, upon the effective date of this permit. On that date, the groundwater monitoring requirements set forth in this permit shall supersede those established in the Agency approved interim status closure plan for the land treatment units.
- 2. The Permittee shall carry out the monitoring specified in this permit on the groundwater present beneath the UNO-VEN Company land treatment units in Lemont, Illinois. The uppermost aquifer beneath the land treatment units is defined as the sandy silt, silty sand, sand, and gravel layer occurring in the lower part of the Lemont Drift and the dolomite bedrock underlying the drift.
- 3. The point of compliance, defined as a vertical surface located at the hydraulically downgradient limit of the land treatment units that extends down into the uppermost aquifer underlying the land treatment units, is delineated by the wells identified as the point of compliance wells in Condition III.C.1 below and illustrated in Figure B-2, Section E, of the Approved Permit Application.

C. WELL LOCATIONS AND CONSTRUCTION

The Permittee shall install and maintain a groundwater monitoring system at the point of compliance as specified below:

1. The Permittee shall maintain the groundwater monitoring wells (UA-Series) and piezometers identified in the table below to allow for the collection of groundwater samples and elevations from the uppermost aquifer. The location of these wells is specified in Appendix E-2, Figure 3-1 of Section E of the Approved Permit Application.

IEPA Well <u>No.</u>	Facility Well <u>No.</u>	Well Depth (ft)	Boring Depth Elevation (ft MSL)	Screen Depth Interval (ft)
G01D	UA-1*	106.90	611.90	92.1 - 102.1
G02D	UA-2**	86.60	605.64	70.0 - 80.0
G03D	UA-3**	89.55	608.18	74.7 - 84.7
G04D	UA-4**	87.00	608.98	72.1 - 82.1
G05D	UA-5**	92.60	602.24	72.1 - 82.1
G06D	UA-6**	96.10	605.55	79.0 - 89.0

- * Denotes Upgradient Wells
- ** Denotes Point of Compliance Wells

Piezometers

			*	
P01D	B-1***	111.10	584.10	101.90 - 106.90
P02D	B-2	110.20	586.86	100.90 - 105.90
P03D	B-3	125.00	587.07	116.00 - 121.00
P04D	B-4	99.25	584.09	90.30 - 95.30
P05D	B-5	103.10	585.39	94.77 - 99.77
P06D	B-6	113.10	587.36	103.92 - 108.92
P07D	B-7	117.42	587.70	107.67 - 112.67
P08D	B-8	118.25	589.20	108.51 - 113.51
P09D	B-9	108.70	584.47	99.50 - 104.50
P10D	B-10	122.20	591.26	117.01 - 122.01
P11D	B-11	131.85	589.24	122.92 - 127.92
P12D	B-12	135.10	588.19	126.20 - 131.20
P13D	B-13	128.00	590.26	119.70 - 124.70
P14D	B-14	99.50	586.58	91.00 - 96.00

IEPA Well No.	Facility Well <u>No.</u>	Well Depth (ft)	Boring Depth Elevation (ft MSL)	Screen Depth Interval (ft)
P15D	B-15	136.93	584.61	127.50 - 132.50
P16D	B-16	124.15	595.48	115.90 - 120.90
P17D	B-17	127.05	599.97	122.90 - 127.90
P18D	B-18	124.65	584.49	114.90 - 119.90

^{***} Denotes Upgradient Piezometer

2. In addition to the groundwater monitoring wells and piezometers identified in the table above the Permittee shall maintain the groundwater monitoring wells identified in the table below to allow for the collection of groundwater samples and elevations from the shallow zone. The shallow zone well network is completed in the discontinuous perched water-bearing zone present above the uppermost aquifer. The location of these wells (SW-Series) is specified in Appendix E-2, Figure 3-1 of Section E of the Approved Permit Application.

IEPA Well <u>No.</u>	Facility Well <u>No.</u>	Well Depth (ft)	Boring Depth Elevation (ft MSL)	Screen Depth Interval <u>(ft)</u>
G01S	SW-1 +	25.50	692.99	692.50 - 712.50
G04S	SW-4 +	57.00	638.96	585.90 - 659.90
G05S	SW-5 +	35.75	649.86	650.90 - 670.90
G07S	SW-7 +	27.93	678.07	652.40 - 672.40
G08S	SW-8+	31.52	639.24	638.40 - 658.40
G09S	SW-9 +	33.83	691.42	689.20 - 709.20

- + Denotes wells to be replaced in accordance with Condition III.C.3.
- 3. Within sixty (60) days of the effective date of the Permit the SW-Series well must be replaced. The SW-Series groundwater monitoring wells were not installed in accordance with Agency guidelines. The plugging, abandonment and subsequent replacement of these wells must be in accordance with procedures found Attachment A to this Permit and Conditions III.C.5, III.C.8, and III.C.9. In addition, a replacement well must be located within ten (10) feet of the existing well and must monitor the same zone as the existing well.

- 4. Within thirty (30) days of the effective date of the Permit additional information concerning the construction of wells UA-1, UA-2, UA-3, UA-4, UA-5, UA-6, B-1, B-2, B-3, B-4, B-5, B-6, B-7, B-8, B-9, B-10, B-11, B-12, B-13, B-14, B-15, B-16, B-17, and B-18 must be submitted to the Agency for review. Information concerning the material used for (1) the filter pack and (2) the grout must be submitted in order to determine the adequacy of construction.
- 5. Construction of each new monitoring well/piezometer must be either in accordance with the diagram contained in Attachment A to this Permit or details and diagrams in the Approved Permit Application. Details include 77 IAC Part 920 regulations, such as 77 IAC.170, which stipulates that the filter pack of wells extend a maximum of six (6) inches below the bottom of the screen. All new monitor wells/piezometers to be installed must be continuously sampled and logged on Agency boring logs, unless otherwise approved by the Agency. A copy of an Agency boring log is shown as Attachment A to this permit.
- 6. The Permittee shall notify the Agency within thirty (30) days in writing if any of the wells identified in Conditions III.C.1 and III.C.2 are damaged or the structural integrity has been compromised. A proposal for the replacement of the subject well shall accompany this notification. The well shall not be plugged until the new well is on-line and monitoring data has been obtained and verified, unless the well is extremely damaged and would create a potential route for groundwater contamination. However, sampling of the damaged, existing well may cease during the period that groundwater samples from the replacement well are being verified. Prior to replacing the subject well, the Permittee shall obtain written approval from the Agency regarding the proposed installation procedures and construction.
- 7. Should any well become consistently dry or unserviceable, a replacement well shall be provided within ten (10) feet of the existing well. This well shall monitor the same zone as the existing well and be constructed in accordance with the current Agency groundwater monitoring well construction standards at the time the wells are replaced or in accordance with the Approved Permit Application. A replacement well which is more than ten (10) feet from the existing well or does not monitor the same geologic zone must be approved by the Agency as a Class II modification and designated as a new well.
- 8. The Permittee shall submit boring logs, construction diagrams and development of a new or replacement well to the Agency at the address below within thirty (30) days of the date that installation of the well is completed. In addition, the Permittee shall

submit certification that plugging and abandonment of a well was carried out in accordance with the approved procedures to the Agency at the address below within thirty (30) days of the date that the well is plugged and abandoned. All information should be submitted to the appropriate Agencies.

Planning and Reporting Section
Bureau of Land
Illinois Environmental Protection Agency
Post Office Box 19276
Springfield, Illinois 62794-9276

- 9. All wells/piezometers shall be equipped with protective caps and locks. Monitoring wells or piezometers located in high traffic areas shall be designed in such a manner as to provide adequate well integrity. This design may consist of a flush or below ground surface completion, or additional protection by the installation of three or more "bumper guards" for wells with aboveground surface completions. The "bumper guards" should be located within 3 or 4 feet of the well/piezometer and be highly visible.
- 10. All wells/piezometers not utilized in the approved groundwater monitoring system, but retained by the facility, must be maintained in accordance with 77 Illinois Administrative Code 920 regulations.
- 11. The Permittee shall submit map(s) in transferable digital format such as AUTOCAD.DXF, at a scale of 1" equal to 200 or 400 feet which include the surveyed well locations, regulated units, point of compliance and facility boundaries on disk within ninety (90) days of completion of any additional wells required by this permit. Revisions of the digital map shall be submitted to Agency within ninety (90) days following any significant facility changes, such as the installation of additional groundwater monitoring wells.

D. MONITORING PARAMETERS

1. The Permittee shall determine groundwater quality at each well identified in Condition III.C.1 and Condition III.C.2 as an upgradient, point of compliance or other well semi-annually during the active life (including closure and post-closure care period). Samples collected during the semi-annual sampling events of each year shall be analyzed for the constituents below:

FIELD PARAMETERS	STORET	<u>UNITS</u>
рН	00400	
Specific Conductance	00094	micromos/cm
Temperature of Water Sample	00011	(°F)
Turbidity	45626	Ntus
Depth to Water (below land surface)	72019	FEET
Depth to Water (below measuring point)	72109	FEET
Elevation of Measuring Point (Top of		
casing)	72110	FT MSL
Elevation of Groundwater Surface	71993	FT MSL
Elevation of Bottom of Well #	72020	FT MSL

[#] Shall be determined during the second sampling event each year.

LIST G1 (SW-Series Semi-Annually)

STORET	<u>UNITS</u>
0.0.600	/=
00680	mg/L
00335	mg/L
01000	ug/L
01002	ug/L
01030	ug/L
01034	ug/L
01049	ug/L
01051	ug/L
	00680 00335 01000 01002 01030 01034 01049

LIST G2 (UA-Series Semi-Annually)

INDICATOR PARAMETERS		STORET	<u>UNITS</u>
TOX		78115	mg/L
TOC		00680	mg/L

NOTE:

i. All parameters with the "(Dissolved)" label to the right shall be determined using groundwater samples which have been filtered through a 0.45 micron filter and used for statistical purposes along with TOX and TOC. All parameters with the "(Total)" label to the right shall be determined from unfiltered samples and compared to the appropriate 35 Ill. Adm. Code 620.410 groundwater quality standard.

- ii. The monitoring results should be reported in ug/L units unless otherwise indicated.
- 2. Within thirty (30) days of the effective date of the Permit, a re-evaluation of constituents proposed to be monitored by the SW-Series and the UA-Series groundwater monitoring wells must be submitted to the Agency for review and approval. Constituents have been found in soils in the treatment zone, below the treatment zone, perimeter samples and the stream sediments samples. The re-evaluation must be in accordance with the 35 Ill. Adm. Code 703.185(f) and 35 Ill. Adm. Code 724.198(a). The list of indicator parameters, waste constituents, or reaction products must provide a reliable indication of the presence of hazardous constituents in the groundwater. At a minimum, the list of constituents for which the SW-Series wells will be analyzed shall include all of the constituents detected in and under the treatment zone as reported in the Site Characterization Report (Appendix B of Appendix I-1 of the Approved Permit Application).

E. SAMPLING AND ANALYSIS PROCEDURES

The Permittee shall use the techniques and procedures described in Volume 1, Section E, Appendix E-2 of the Approved Permit Application except as modified below, when obtaining and analyzing samples from the groundwater monitoring wells described in Condition III.C.1 and Condition III.C.2 above:

- 1. Samples shall be collected by the techniques described in Section E, Volume 1, Appendix E-2 of the Approved Permit Application.
- 2. Samples shall be preserved, shipped and handled in accordance with the procedures specified in Section E, Volume 1, Appendix E-2 of the Approved Permit Application.
- 3. Samples shall be analyzed by the analytical methods and procedures proposed on page E-235 of Appendix E-2 of the Approved Permit Application according to SW-846 Methods unless otherwise approved by the Agency. Methods must generally be those with PQLs which are reasonable for compounds without standards and less than or equal to standards where the standards exist for any method submitted for Agency approval.
- 4. Samples shall be tracked and controlled using the chain of custody procedures specified in Section E, Volume 1, Appendix E-2 of the Approved Permit Application.

F. GROUNDWATER ELEVATIONS

- 1. The Permittee shall determine the groundwater surface elevation referenced to mean sea level (MSL) at each well each time groundwater is sampled in accordance with Condition III.H.
- 2. The Permittee shall determine the surveyed evaluation of the "stick-up" referenced to MSL when the well is installed (with as-built diagrams) and every five years, or whenever the elevation changes.
- 3. Elevation, as referenced to MSL, of the bottom of each monitoring well (STORET 72020), is to be reported at least annually. The mandatory measurement shall be taken during the second semi-annual sampling event each year.

G. STATISTICAL PROCEDURES

The Permittee shall use the statistical procedures described in Section E of the Approved Permit Application except as follows:

- 1. The background values calculated for groundwater monitoring well UA-1 must be based on historical data gathered over the entire interim status period using a trend analyses.
- 2. Within thirty (30) days of the effective date of the Permit calculations of background values for well UA-1 must be submitted for Agency review and approval.
- 3. Within thirty (30) days of the effective date of the Permit additional information addressing the data analysis of the SW-Series wells must be submitted to the Agency for review and approval. The Permittee shall describe in greater detail the procedures for evaluating the SW-Series analysis data and should include more definitive language than "sufficient quantity", "obvious trends", or "sudden changes".

H. MONITORING PROGRAM AND DATA EVALUATION

- 1. The Permittee shall collect, preserve and analyze samples pursuant to Condition III.E.
- 2. The Permittee shall determine groundwater quality at each monitoring well at the compliance point quarterly during the active life of a regulated unit (including the closure and post-closure care periods). The Permittee shall express the groundwater quality at each monitoring well in a form necessary for the determination of statistically significant increases (i.e., means, variances, etc.).
- 3. The Permittee shall determine the groundwater flow rate and direction in the uppermost aquifer at least annually from the monitoring wells listed in Condition III.C.1.
- 4. The Permittee shall determine whether there is a statistically significant increase over background values for each parameter identified in Conditions III.D.1, List G1, each time groundwater quality is determined at the compliance point. In determining whether such an increase has occurred, the Permittee must compare the groundwater quality at each monitoring well specified in Condition III.C.1 to the background values to be determined in accordance with the statistical procedures specified in Condition III.G.

I. REPORTING AND RECORDKEEPING

- 1. The Permittee shall enter all monitoring, testing and analytical data obtained in accordance with Condition III.H into the operating record.
- 2. Samples collected to meet the requirements of the groundwater monitoring program described in Conditions III.D. and III.E shall be collected semi-annually, as identified in the table below. The results of the analysis conducted on the groundwater quality samples along with the approved evaluation shall be submitted in accordance with this schedule.

Sampling Event of Calendar <u>Year</u>	Results Submitted to the Agency by the Following	Constituents
Second Quarter	July 15	G-1, G-2
Fourth Quarter	January 15	G-1, G-2

- 3. Groundwater surface elevation data, measured pursuant to Condition III.F.1 shall be collected semi-annually and submitted to the Agency as identified in the table above.
- 4. The Permittee shall report the groundwater flow rate and direction in the uppermost aquifer, as required by Condition III.H.3 during the second semi-annual sampling event of each year.
- 5. The Permittee shall report the surveyed elevation, as required by Condition III.F.2, of the top of the well casing ("stick-up"), referenced to MSL, in accordance with the following schedule:
 - a. For the wells identified in Conditions III.C.1 and III.C.2 above, every five years (during the second sampling event), <u>or</u> at the request of the Agency, <u>or</u> whenever the elevation changes. The initial "re-survey" of all wells listed in Conditions III.C.1 and III.C.2 shall be conducted after the replacement wells required by this permit are installed.
 - b. For any new wells, at the time of installation and reported in the as-built diagrams. Subsequent measurements shall be made very five years (during the second quarter sampling event) or whenever the elevation changes.
- 6. Elevation of the bottom of each monitoring well identified in Conditions III.C.1 and III.C.2, referenced to MSL, is to be reported annually. This measurement shall be taken during the second semi-annual sampling event. (STORET 72020)
- 7. Information required in Conditions III.I.2 and III.I.6 must be submitted on the chemical analysis forms (Attachment A) or in another format/media preapproved by the Agency.
- 8. The Permittee shall report all information to the Agency in a form which can be easily reviewed. All submittals must contain tables of data, drawings and tests (as necessary) to accurately describe the information contained in the submittal.
- 9. If the Permittee determines, pursuant to Condition III.G above, that there is a statistically significant increase for any of the parameters specified in Condition III.D.1 at any monitoring well at the compliance point, the Permittee shall submit the results of this statistical analysis and the results of the secondary statistical comparison within seven (7) days of the date that the increase is discovered. The Permittee shall:

- a. Notify the Bureau of Land of this Agency in writing indicating what parameters and wells have shown statistical increases and provide all statistical calculations which have been completed. This notification shall be submitted to the Agency within seven (7) days of the date that the increase is discovered.
- b. Sample the groundwater in all wells listed in Condition III.C.1 and determine if the concentration of all constituents identified in Appendix I of 35 IAC 724 such that the results will accompany the permit modification required by Condition III.I.9.d below.
 - For any Appendix I compounds found in the analysis pursuant to this condition, the Permittee may resample within one month and repeat the analysis for those compounds detected. If the results of the second analysis confirm the initial results, then these constituents will form the basis for compliance monitoring. If the Permittee does not resample for the compounds pursuant to this condition, the hazardous constituents found during this initial Appendix I analysis will form the basis for compliance monitoring.
- c. Establish background values for each Appendix I constituent found in the groundwater during sampling and analyses required by Condition III.I.9.b above. These values shall be (1) based on a minimum of four sampling events, (2) submitted to the Agency with the application required by Condition III.I.9.d below and (3) expressed in a form necessary for the statistical procedures in Condition III.G above.
- d. Submit to the Bureau of Land of this Agency an application for a permit modification to establish a compliance monitoring program meeting the requirements of 35 IAC 724.199. The application shall be submitted to the Agency within ninety (90) days of the date that the increase is discovered. Furthermore, the application must include the following information:
 - (1) An identification of the concentration of any 35 IAC 724, Appendix I constituents found in the groundwater at each monitoring well at the compliance point;
 - (2) Any proposed changes to the groundwater monitoring system at the facility necessary to meet the requirements of Section 724.199;
 - (3) Any proposed changes to the monitoring frequency sampling and analysis procedures, or methods or statistical procedures used at the facility necessary to meet the requirements of Section 724.199; and

- (4) For each hazardous constituent found at the compliance point, a proposed concentration limit under 35 IAC 724.194(a)(1) or 724.194(a)(2), or a notice of intent to seek an alternative concentration limit for a hazardous constituent under 35 IAC 724.194(b).
- e. Submit to the Bureau of Land of this Agency a corrective action feasibility plan to meet the requirements of 35 IAC 724.200 unless the concentration of all hazardous constituents identified under Condition III.G.9.b above are listed in 35 IAC 620.410 and their concentrations do not exceed the respective Groundwater Quality Standard or the Permittee has sought an alternative concentration limit under III.I.9.d.4 above for every hazardous constituent identified under Condition III.I.9.b above. This plan must be submitted to the Agency within 180 days of the date that the increase is discovered.
- f. Submit to the Bureau of Land of this Agency all data necessary to justify any alternative concentration limit for a hazardous constituent sought under Condition III.I.9.d.4 above. This data shall be submitted to the Agency within 180 days of the date that the increase is discovered.
- 10. If the Permittee determines, pursuant to Condition III.G above, that there is a statistically significant increase above the background values for the parameters specified in Condition III.D.1 above, the Permittee may demonstrate that a source other than a regulated unit caused the increase or that the increase resulted from error in sampling, analysis, or evaluation.

The demonstration shall be submitted to the Agency for approval and shall be responded to by the Agency in writing. If the Agency determines that the demonstration is unsuccessful, the response from the Agency shall state the reasons why the demonstration is unsuccessful. This denial may be appealed to the Illinois Pollution Control Board pursuant to 35 IAC Part 105. Submittal of such a demonstration does not relieve the Permittee of the requirements in Condition III.I.9.d above unless the Agency determines that the demonstration is successful. Appeal of the Agency's determination that a demonstration is unsuccessful shall not excuse noncompliance with the permit, or delay any permit modification proceeding.

To make this demonstration the Permittee shall:

a. Notify the Bureau of Land of this Agency in writing that they intend to make this demonstration. This notification must be submitted to the Agency within seven (7) days of the date that the increase is discovered.

- b. Submit a report to the Bureau of Land of this Agency which demonstrates that a source other than a regulated unit caused the increase, or that the increase resulted from error in sampling, analysis, or evaluation. This report must be submitted within ninety (90) days of the date that the increase is discovered.
- c. Submit to the Bureau of Land of this Agency an application to make any appropriate changes to the detection monitoring program. This application must be submitted within ninety (90) days of the date that the increase is discovered.
- d. Continue to monitor in accordance with the detection monitoring program in place at the facility.

J. REQUEST FOR PERMIT MODIFICATION

- 1. If the Permittee determines that the detection monitoring program no longer satisfies the requirements of 35 IAC 724, Subpart F, the Permittee must, within ninety (90) days, submit an application for a permit modification to the Bureau of Land of this Agency to make any appropriate changes to the program which will satisfy the regulations.
- 2. Conditions in this section of the permit may be modified in accordance with 35 IAC 705.128 if there is cause for such modification, as defined in 35 IAC 702.184. Causes for modification identified in this section include, but are not limited to, alterations to the permitted facility, additional information which would have justified the application of different permit conditions at the time of issuance, and new regulations.

K. COMPLIANCE SCHEDULE

All information submitted in response to Conditions III.C.3, III.C.4, III.D.2, III.G.2, III.G.3 shall be submitted as permit modification requests. The submittals shall meet the requirements for permit modification requests found in 35 IAC 703 Subpart G: Changes to Permits. The Agency shall review each submittal and either issue comments or a modified permit in response to the submittal.

In addition to the permit modification requests above the Permittee must submit within thirty (30) days of the effective date of the Permit the following information requested in the August 2, 1996 letter from the Agency:

- 1. Additional information addressing the sealing and abandonment of the MW-Series wells (MW-1 through MW-9).
 - a. Procedures used for sealing and abandonment of MW-Series wells; and
 - b. A statement as to if the procedures used were Agency approved.
- 2. Tabulation of all groundwater analysis results and elevation data for each well from the first year (1981) and each subsequent sampling event.
- 3. A topographic map including the monitoring well system for SWMU #33 (Section III-A).
- 4. A topographic map which includes identification of the uppermost aquifer and aquifers hydraulically interconnected beneath the facility property, including groundwater flow direction and rate.

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SECTION IIIa GROUNDWATER MONITORING: SWMU #33 (GMZ)

The January 25, 1996 letter from USEPA granted approval for the closure of the Stormwater Basin (SWB). However, this did not change the requirements of the applicable Agency groundwater monitoring programs at or near the SWB. The groundwater management zone (GMZ) established in this area is identified as Solid Waste Management Unit (SWMU) #33. The Permittee shall submit the groundwater monitoring plan for the GMZ for purposes of incorporating the groundwater monitoring program into the Permit within thirty (30) days of the effective date of the Permit.

The submittal shall meet the requirements for permit modification requests found in 35 IAC 703 Subpart G: Changes to Permits. The Agency shall review the submittal and either issue comments or a modified permit in responses to the submittal.

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SECTION IV CORRECTIVE ACTION ACTIVITIES

A. INTRODUCTION

In accordance with Section 3004 of RCRA and 35 IAC 724.201 Uno-Ven shall institute such corrective action as necessary to protect human health and the environment from all releases of hazardous wastes or hazardous constituents, listed in Appendix H of 35 IAC Part 721, from any solid waste management unit (SWMU) at its Refinery in Lemont, Illinois. This shall be accomplished by:

- 1. Conducting a RCRA Facility Investigation (RFI) to determine whether releases of hazardous wastes and hazardous constituents have occurred from any solid waste management unit (SWMU) at its facility, and if so, the nature and extent of the release(s).
- 2. Based upon the results of the RFI, developing and implementing a Corrective Measures Program which describes the necessary corrective actions which will be taken. The required corrective actions shall be those actions necessary to protect human health and the environment from all releases of hazardous wastes or hazardous constituents, listed in Appendix H of 35 IAC Part 721, from any of the SWMUs determined to pose an environmental threat by the RFI required under the terms and conditions of this Permit.

B. CONDUCTING THE RCRA FACILITY INVESTIGATION

The Permittee must conduct a RCRA Facility Investigation (RFI) to determine the nature and extent of releases of hazardous wastes and hazardous constituents from certain SWMUs at the subject facility. This RFI shall be carried out in three phases. Each phase will provide for a more detailed evaluation of each Solid Waste Management Unit identified. A discussion of the goals of each phase of the RFI is presented in Section II of Attachment C. The Scope of Work for the RFI is provided as Attachment C to the Permit.

- 1. In general, the RFI must be carried out in accordance with the following requirements:
 - a. Based upon the results of the RCRA Facility Assessment which was conducted by the Agency for this facility, the SWMUs identified in the table below must be evaluated in the RFI for potential releases to certain environmental media of concern also identified in the table. (Please note that this is <u>not</u> a complete listing of SWMUs at the subject facility.):

SWMU	Name	nvironmental Media of Concern
<u> </u>	<u>realite</u>	
1	Former Empty Drum Storage Area	Soil
2A-E	Former Process Wastewater Line ("Big Inch")	Soil
3	Former North Plant API Separator and	
	Above Ground Corrugated Plat Separator	Soil
4 .	Hot Oil Line, Seneca Petroleum Storage Tank	Soil
5	Former Dump Area for Lime Sludge,	
	Seneca Tank Location	Soil
7	Interceptor Trench; Canal Dock	Soil
10	North Plant Heat Exchanger Bundle Cleaning Pad	Soil (Integrity Inspection)
11 A-B	Recycle Tanks; 11A - Mobil Interface Tank 436 11B - 301 Tank	; Soil
12	Tank 201 and Proximate Area	Soil
13	Sludge Drying Area	Soil
15A-B	Wastewater Treatment Sludge Decant Basins within Land Treatment Facility	Soil/Surface Water
15C	Wastewater Treatment Sludge Decant Basins within Land Treatment Facility	Soil/Surface Water
16	Sludge Application Area	Soil
17	Intermittent Stream/Stormwater Conveyance	Soil/Surface Water
	System	
18	Waste Staging Area	Soil
19A - D	Former Sludge Drying Areas	Soil
20	Active Drum Staging Area	Soil (Integrity Inspection)
21	Vertical Oil Storage Tanks at the Stormwater Basin (SWB)	Soil
22	Stormwater Basin (SWB)	Soil/Surface Water

23D	Water and Wastewater Treatment Plant (WWTP)	Soil/Surface Water
24 .	Former API Separator	Soil
25A-B	Heat Exchanger Bundle Cleaning Pad	Soil (Integrity
į.		Inspection)
25C	Supplementary Heat Exchanger Bundle	Soil (Integrity
	Cleaning Pad Cleaning Building	Inspection)
28	Filter Press and Sludge Dewatering at Alky Unit	Soil
30	Former Primary Light Oil (PLO) Underground	Soil/Groundwater
	Storage Tank (UST) at Fuels Loading Rack Area	,
31A-E	Former Underground Storage Tanks located at	Soil/Groundwater
	Former Service Station and Active Solvent	
	Loading Rack Area	
32	Former Process Blending UST at the Process	Soil/Groundwater
	Blend Center	
34	French Drain System	Soil
35	Red Die Spill Area	Soil
36	Former USTs Located at South Plant	Soil/Groundwater
	Administration Maintenance Area	\$
37	Former USTs Located near WWTP Outfall	Soil/Groundwater
	to Chicago Sanitary & Ship Canal	
38	Process Sewer System	Soil/Surface Water
39	Storm Sewer System	Soil/Surface Water
40	Open Flow Ditches	Soil/Surface Water
41	East Tank Farm	Soil
42	West Tank Farm	Soil
43	Product Pipe Lines	Soil

- b. In addition to focusing on certain environmental media for individual SWMUs as identified in (a) above, the RFI efforts must also focus on potential releases to groundwater on a more area-wide basis. This additional effort is necessary because the refinery is quite old and was rebuilt in the early 1970s. To conduct this area-wide investigation, it will be necessary to divide the UnoVen property into six subareas (the South Plant Refinery, the East Tank Farm, the West Tank Farm, the North Plant [includes Needle Coker and Petrochemical Complex] and the Canal Dock). This area-wide investigation should begin in Phase I of the RFI.
- c. The Phase I groundwater investigation for SWMUs 30, 31A-E, 32, 36 and 37 may be coordinated with the area-wide groundwater investigations required by 1.b above.

d. More specific requirements regarding what must be contained in the RFI Workplans are contained in Attachment C to this permit. It must be noted that the Phase I workplan need only investigate for releases to the soil or surface water from the individual SWMUs identified in 1.a above (except as noted in 1.c above) as well as the area-wide groundwater investigations required by 1.b above. In developing these workplans, the Permittee may make reference to previous reports/documents to the Agency which contain the requested information. Any such reference must identify: the name of the document, the author of the document, the date it was submitted to the Agency, the person within the Agency to whom it was submitted and the exact pages within the document on which the desired information is located. It is respectfully requested that the Permittee be prepared to provide copies of these documents to the Agency if they are not readily accessible. It must also be noted that SWMUs adjacent to each other may be grouped together by the Permittee and thus allowing RFI activities to focus on these groups rather than individual SWMUs.

Finally, it must be noted that there are two other SWMUs present at the facility being addressed by other portions of this permit:

- (1) Landfarm Treatment Facility
- (2) Groundwater Monitoring Zone associated with the Stormwater Basins
- 2. The Permittee shall submit to the Illinois Environmental Protection Agency's Bureau of Land (Agency's BOL) Permit Section, within 90 days after the effective date of this permit, a written RCRA Facility Investigation (RFI) Phase I Workplan. In general, the Phase I RFI Workplan must contain the following:
 - a. General information regarding the facility in Lemont, Illinois.
 - b. Information, as it is available, regarding each SWMU identified in Condition B.1 above which (1) characterizes the unit, (2) describes its history of operations, and (3) documents the unit's integrity.
 - c. Proposed procedures, including field activities, to determine the absence or presence of releases from each SWMU of hazardous waste or hazardous constituents to the soil and/or surface water to meet the requirements of the attached scope of work.
 - d. Information, as it is available, regarding all geologic, hydrogeologic and groundwater quality investigations carried out at the facility;

e. Proposed procedures for conducting an investigation of the groundwater at the six subareas identified in 1.b above and the five UST areas identified in 1.c above.

More specific requirements regarding what must be contained in the Phase I Workplan are contained in Attachment C to this permit.

- 3. The Agency's BOL will approve, approve with modifications, or disapprove the Phase I Workplan in writing and provide comments regarding the necessary corrections or modifications.
 - a. Within 60 days of receipt of such comments, Uno-Ven must modify the plan or submit a new plan for the Agency's BOL approval.
 - b. Within 60 days of the Agency's BOL approval of the RFI Phase I Workplan, Uno-Ven shall begin implementing the Workplan according to the terms and schedule in the Workplan.
 - c. Agency action on the Phase I Workplan will be subject to the appeal provisions of Sections 39(a) and 40(a) of the Illinois Environmental Protection Act.
- 4. Uno-Ven must submit a report documenting the efforts carried out as set forth in the approved RFI Phase I Work Plan in accordance with the schedule established in the approved Workplan. This report must:
 - a. Be organized so as to present a comprehensive and coherent description of the sources, nature and extent of contamination discovered at each SWMU during the RFI Phase I Workplan.
 - b. Be prepared in accordance with (1) the Data Management Plan which is to be a part of the RFI Phase I Workplan and (2) any conditions imposed by the Agency as part of its approval of the Phase I workplan.
 - c. Contain an evaluation of the data collected during the Phase 1 investigation and a recommendation regarding the need for a Phase 2 investigation at each SWMU. As such, the Phase 1 report should contain preliminary objectives which will be used to determine if there is a need to conduct a Phase 2 investigation at each SWMU.

- 1. These preliminary values must be fairly conservative numbers, below which, the Agency and Uno-Ven are fairly certain there will be no impact to human health or the environment. The goal in using these values is to eliminate from further consideration: (1) those constituents not detected or only detected at low concentrations below objectives typically established by the Agency and (2) those SWMUs from which there has been no release or from which there has been a minor release which still meets the objectives typically established by the Agency.
- 2. Detection of constituents above these preliminary values does not necessarily mean that corrective action must occur. Rather, it only means that a Phase II investigation must be conducted to better determine the extent and amount of contamination present at a given SWMU.
- 3. These preliminary soil cleanup objectives may not be the final corrective measures target which will be used in determining the final need for and extent of remediation.
- 4. The final soil values established for each SWMU will typically be a higher value than these preliminary soil cleanup objectives.
- d. Contain a general discussion of the procedures which will be used in carrying out Phase II of the RFI.
- 5. Following the submittal of the RFI Phase I report, the Agency's BOL will review the submitted data. The Agency's BOL will offer Uno-Ven the opportunity to meet with Agency staff to discuss the results of the review prior to finalization of the review comments. The Agency's BOL will then notify Uno-Ven in writing of the results of the review. This notification will discuss the status of each of the SWMUs evaluated as part of Phase I of the RFI.
 - a. If the Agency's BOL determines, based upon the data provided within and obtained from the Phase I Workplan for each SWMU investigated, that (1) there is no potential for release from that SWMU to the environmental media of concern and (2) there has been no release of hazardous wastes or hazardous constituents to the environmental media of concern from that SWMU, then no further action will be required for that SWMU.
 - b. If the Agency's BOL determines, based on the data from the Phase I RFI for each SWMU investigated, that (1) there has been a release to any environmental media of concern, or (2) there currently is a release to any environmental media of

- concern then Uno-Ven will be required to conduct additional investigation of the SWMU as part of Phase II and, if necessary, Phase III of the RFA.
- c. If the results of the RFI Phase I investigation are inconclusive, a Supplemental Phase I investigation must be conducted by Uno-Ven. This Supplemental Phase I investigation shall be conducted to collect additional information so that a conclusive determination can be made regarding a current/past release from a SWMU. This Supplemental Phase I investigation shall be carried out in accordance with the RFI guidance provided above.
- d. The final letter sent to the facility conveying the results of the review will:
 - 1. Identify those SWMUs for which no further investigation is needed;
 - 2. Identify which SWMUs which must be further investigated as part of a Phase II and/or a Phase III Investigation to determine the rate and extent of migration of hazardous waste or hazardous constituents and the concentrations of the hazardous waste or hazardous constituents in the environmental media potentially impacted by the SWMU. Unless sufficient information is obtained in the Phase II investigation to demonstrate soil contamination has not extended to the groundwater, units which have the possibility of releasing hazardous waste or hazardous constituents to groundwater must be evaluated as part of Phase III of the RFA.
 - 3. Identify, for each SWMU requiring further investigation, the associated environmental media which must be further investigated;
- e. Agency action on the final Phase I RFI report and proposed preliminary objectives will be subject to the appeal provisions of Sections 39(a) and 40(a) of the Illinois Environmental Protection Act.
- 6. If Uno-Ven is notified in writing in accordance with Condition B.5 that any SWMUs identified in Condition B.1 above must be included in Phase II of the RFI, then Uno-Ven must develop and submit a Phase II RFI Workplan. Phase II of the RFI shall focus on determining the rate and extent of migration of hazardous waste or hazardous constituents and the concentrations of the hazardous waste or hazardous constituents. Such a workplan must be submitted no more than 90 days after the facility is notified in writing in accordance with Condition B.5 above. The Scope of Work for Phase II of the RFI are contained in Attachment C to the Permit.

- 7. The Agency's BOL will approve, modify and approve, or disapprove the Phase II workplan in writing and provide comments regarding the required corrections or modifications.
 - a. Within 60 days of the receipt of such comments, Uno-Ven must modify the plan or submit a new plan for the Agency's BOL approval.
 - b. Within 60 days of the Agency's BOL approval of the RFI Phase II Workplan, Uno-Ven shall begin implementing the plan according to the terms and schedule established in the Phase II Workplan.
 - c. Agency action on the Phase II workplan will be subject to the appeal provisions of Sections 39(a) and 40(a) of the Illinois Environmental Protection Act.
- 8. Uno-Ven must submit a report documenting the efforts carried out in accordance with the approved RFI Phase II Workplan in accordance with the schedule established with in the Phase II Workplan. This report must be prepared in a manner which is similar to that specified in Condition B.4 above.
- 9. Following submittal of the RFI Phase II report, the Agency's BOL will review the data obtained from the RFI Phase II investigation and notify Uno-Ven in writing of the results.
 - a. If the Agency determines that there is a potential that groundwater has been impacted by a release of hazardous wastes or hazardous constituents from any SWMU evaluated during the Phase I or Phase II investigation, then Uno-Ven must conduct Phase III of the RFI for such SWMUs. The purpose of the Phase III investigation of the RFI will be to (1) determine if groundwater has been impacted at such SWMUs and (2) the extent of any detected release. The requirements associated with a Phase III Investigation are contained in Attachment C to this Permit.
 - b. If the Agency's BOL determines that a RFI Phase III investigation is not required, based on data obtained from the RFI Phase II investigation, the Agency reserves the right to require that corrective measures be conducted for the SWMUs of concern to address releases identified through the Phase I and Phase II investigations.

- c. The Agency's response to the Phase II report will:
 - i. Identify those SWMUs for which Phase III of the RFI must be conducted; and,
 - ii. Identify those SWMUs and associated environmental media for which corrective measures are is required, although no Phase III investigation is required.
- d. Agency action on the final RFI Phase II report will be subject to the appeal provisions of Sections 39(a) and 40(a) of the Illinois Environmental Protection Act.
- 10. Within 90 days of notification of the need for a Phase III investigation, Uno-Ven shall submit a plan for conducting Phase III of the RFI. The Scope of Work which should be followed in developing this work plan is provided in Attachment C. The Agency's BOL will approve, modify and approve, or disapprove and provide comments to Uno-Ven as to the corrections or modifications needed for the RFI Phase III Workplan.
 - a. Within 60 days of receipt of such comments, Uno-Ven must modify the plan or submit a new plan for the Agency's BOL approval.
 - b. Within 60 days of the Agency's BOL approval of the RFI Phase III Workplan, Uno-Ven shall begin implementing the plan according to the terms and schedule established within the Workplan.
 - c. Agency action on the Phase III workplan will be subject to the appeal provisions of Sections 39(a) and 40(a) of the Illinois Environmental Protection Act.
- 11. Uno-Ven must submit a report documenting the efforts carried out in accordance with the approved RF Phase III Workplan in accordance with the schedule set forth in that workplan. This report must be prepared in a manner which is similar to that specified in Condition B.4 above.
- 12. Following submittal of the RFI Phase III report, the Agency's BOL will review the data contained in the report and notify Uno-Ven in writing of the results.
 - a. If the Agency determines that there has been a release of hazardous waste or hazardous constituents from a SWMU to the groundwater, then Uno-Ven must

perform corrective action, as necessary, to protect human health and the environment. Additional corrective action will also be required to address the source of the groundwater contamination of the groundwater.

- b. If the Agency determines that there (1) has not been a release of hazardous waste or hazardous constituents from a SWMU to the groundwater and (2) is no potential for releases of hazardous waste or hazardous constituents from a SWMU to the groundwater, then no corrective action will be required at that SWMU relating to groundwater. However, corrective action may be necessary to address the waste and/or contaminated soil present at the SWMU.
- c. If the Agency determines that (1) there has not been a release of hazardous waste or hazardous constituents from a SWMU to the groundwater (2) but there is a potential for future releases of hazardous waste or hazardous constituents from a SWMU to the groundwater, then the Agency may require a longer term groundwater monitoring program at any SWMU where substantial soil contamination exists (as determined by the Agency), or at any SWMU which would meet the definition of a land disposal unit. This additional monitoring need for this is dependent on the corrective action taken in response to the waste and/or contaminated soil present at the SWMU.
- d. The Agency's response to the Phase III report will:
 - i. Identify those SWMUs investigated as part of Phase III of the RFI from which there has been a release of hazardous waste or hazardous constituents to groundwater that requires corrective action;
 - ii. Identify those SWMUs investigated as part of Phase III of the RFI for which no corrective action is required for groundwater at this time;
 - iii. Identify those land-based SWMUs investigated as part of the Phase III RFI for which a longer term groundwater monitoring program must be established. "Land-based SWMUs" are SWMUs where waste, contaminated soil and/or contaminated groundwater are allowed to remain in-place.
- e. Agency action on the Phase III Workplan will be subject to the appeal provisions of Sections 39(a) of the Illinois Environmental Protection Act.

C. CORRECTIVE MEASURES REQUIREMENTS

If, in accordance with Conditions B.9 and/or B.12, it is determined that corrective measures must be taken in response to releases from any SWMU, then Uno-Ven shall implement a Corrective Action Measures Program (CMP), as described in Attachment D. The Phase I CMP report must be submitted within 60 days after receipt of the notification from the Agency that corrective measures are necessary to protect human health and the environment from observed releases from SWMUs at the facility. The purpose of the CMP is to describe the procedures which will be followed in providing corrective measure at each SWMU requiring corrective measures. The proposed corrective measures must be sufficient to protect human health and the environment from the observed release. Subsequent submittals associated with the corrective measures process must be submitted to the Agency in accordance with an approved schedule.

D. FINANCIAL ASSURANCE FOR CORRECTIVE ACTION

1. Uno-Ven shall prepare a cost estimate for the completion of any corrective measure(s) required under this Permit, in order to provide financial assurance for completion of corrective action, as required under 35 IAC 724.201(b). Such a cost estimate will be based upon the cost of contamination investigations and assessments for the SWMU(s), and design, construction, operation, inspection, monitoring, and maintenance of the corrective measure(s) to meet the requirements of this Permit. This cost estimate must be submitted to the Agency's BOL and revised according to the following schedule:

Facility Submission	<u>Due Date</u>
Initial Cost Estimate (with Workplan)	120 days after the RFI Phase I effective date of this Permit
Revised Cost Estimate (with the initial submittal of each RFI Report and/or CMP report)	Upon written Agency request

2. Uno-Ven shall demonstrate continuous compliance with 35 IAC 724.201 by providing documentation of financial assurance using a mechanism specified in 35 IAC 724.243, in at least the amount of the cost estimate required under Condition D.1 the words "completion of corrective action" shall be substituted for "closure and/or post-closure", as appropriate in the financial instrument specified in 35 IAC 724.251. The documentation shall be submitted to the Agency's BOL within 60 days after the

submittal of the initial or revised cost estimates required under Condition E.1. The Agency's BOL may accept financial assurance for completion of corrective action in combination with another financial mechanism that acceptable under 35 IAC 724.246 at its discretion.

E. FUTURE RELEASES FROM SWMUS

Whenever the Permittee(s) becomes aware that any SWMU, that was not found to be releasing hazardous waste or constituents during the RFI, or was not addressed under the corrective action requirements of this permit, may have started to release hazardous waste or constituents, the Permittee(s) shall report this information to the Agency's BOL in writing within thirty (30) days of discovery. Upon the Agency's written request, the Permittee(s) shall determine the nature and extent of the contamination by following the procedures set forth in Conditions IV.B through IV.D, beginning on the date of notification, rather than on the effective date of the permit.

F. NOTIFICATION REQUIREMENTS FOR AN ASSESSMENT OF NEWLY-IDENTIFIED SOLID WASTE MANAGEMENT UNIT(S)

- 1. The Permittee(s) shall notify the Agency's BOL in writing of any newly-identified SWMU(s) discovered during the course of groundwater monitoring, field investigations, environmental audits, or other means, no later than sixty (60) calendar days after discovery. For the purposes of this permit, "newly-identified SWMUs" shall mean all SWMUs located at the subject facility for which corrective actions have not previously been required by this permit, or which have not been previously listed in the RFA for this facility. The notification shall provide the following information, if available:
 - a. The location of the newly-identified SWMU in relation to other SWMUs on a scaled map or drawing;
 - b. The type and past and present function of the SWMU;
 - c. The general dimensions, capacities, and structural description of the unit (available drawings and specifications provided);
 - d. The period during which the unit was operated;

- e. The specifics on all materials, including but not limited to, wastes and hazardous constituents, that have been or are being managed at the SWMU, to the extent available; and
- f. The results of any relevant available sampling and analysis which may aid in determining whether releases of hazardous wastes or hazardous constituents have occurred or are occurring from the unit.
- 2. If the submitted information demonstrates a potential for a release of hazardous waste or constituents from the newly identified SWMU, the Agency may request in writing, that the Permittee(s) prepare a Solid Waste Management Unit (SWMU) Assessment Plan and a proposed schedule of implementation and completion of the Plan for any additional SWMU(s) discovered subsequent to the issuance of this Permit.
- 3. Within 120 calendar days after receipt of an Agency request for a SWMU Assessment Plan, the Permittee(s) shall prepare a SWMU Assessment Plan consistent with the requirements of IV.B through IV.E above. This SWMU Assessment Plan must also propose investigations, including field investigations if necessary, to determine the release potential to specific environmental media for the newly-identified SWMU. The SWMU Assessment Plan must demonstrate that the sampling and analysis program, if applicable, is capable of yielding representative samples and must include parameters sufficient to identify migration of hazardous waste and hazardous constituents from the newly-discovered SWMU(s) to the environment.
- 4. After the Permittee(s) submits the SWMU Assessment Plan, the Agency shall either approve, approve with conditions or disapprove the Plan in writing. If the plan is approved, the Permittee(s) shall begin to implement the Plan within forty-five (45) calendar days of receiving such written notification. If the Plan is disapproved, the Agency shall notify the Permittee(s) in writing of the Plan's deficiencies specify a due date for submittal of a revised plan.
- 5. The Permittee(s) shall submit a report documenting the results of the approved SWMU Assessment Plan to the Agency in accordance with the schedule in the approved SWMU Assessment Plan. The SWMU Assessment Report shall describe all results obtained from the implementation of the approved SWMU Assessment Plan.

G. COMPLETION OF CORRECTIVE MEASURES

- 1. Uno-Ven shall complete those corrective measures contained in the Corrective Measures Program approved in accordance with Condition D above. Uno-Ven may request the Agency's BOL to consider corrective action complete at any point during compliance with this Permit. The petition for such a request should include a demonstration of the following:
 - a. That there have been no releases of hazardous waste or hazardous constituents to any media from the SWMUs; or
 - b. That all releases of hazardous waste or hazardous constituents to all media targeted within the RFI for investigation have been remediated to the target cleanup objectives specified within the approved Corrective Measures Plan, and shall also describe how releases will be prevented in the future; or
 - c. That, through the use of an Agency approved risk assessment, the corrective action is successful in protecting human health and the environment; or
 - d. Some combination of the above demonstrations.

Appropriate documentation and certification must accompany such a demonstration. The actual documentation to be submitted will be identified in the Agency's letter approving the corrective action plan.

Uno-Ven shall be notified in writing if the Agency's BOL approves the request that the corrective actions can be considered complete. The notification from the Agency's BOL to Uno-Ven may include a release from the financial requirements of Condition E above. This action shall be subject to the appeal provisions set forth in Section 39(a) of the Environmental Protection Act.

2. A determination of no further action shall not preclude the Agency's BOL from requiring continued or periodic inspections of the SWMU(s) or continued or periodic monitoring of the specified environmental media when site-specific circumstances indicate that releases of hazardous wastes including hazardous constituents are likely to occur, if necessary to protect human health and the environment. Any requirement for long-term groundwater monitoring will only be required at a SWMU where substantial soil contamination exists (as determined by the Agency) or at any SWMU which would meet the definition of a land disposal unit. Any such requirement will be subject to the appeal provisions of Section 39(a) of the Illinois Environmental Protection Act.

3. A determination of no further action shall not preclude the Agency's BOL from requiring further investigations, studies, or remediation at a later date, if new information or subsequent analysis indicates a release or likelihood of a release from a SWMU at the facility that is likely to pose a threat to human health of the environment. In such a case, the Agency's BOL shall initiate a Permit modification to rescind the determination no further action.

H. INTERIM MEASURES

At any time during the RFI the Permittee may initiate interim measures for the purpose of preventing continuing releases and/or mitigating the results of releases and/or mitigating the migration of hazardous wastes or hazardous constituents. It may not be necessary to conduct all phases of the RFI investigation if the Agency's BOL and the Permittee(s) agree that a problem can be corrected, or a release cleaned up, without additional study and/or without a formal corrective measures program ("CMP").

- 1. Prior to implementing any interim measures, the Permittee must submit detailed information regarding the proposed interim measures to the Agency's BOL for approval. This information shall include, at a minimum:
 - a. Objectives of the interim measures: how the measure is mitigating a potential threat to human health and the environment and/or is consistent with and integrated into any long-term solution at the facility;
 - b. Design, construction, and maintenance requirements.
 - c. Schedules for design and construction; and
 - d. Schedules for progress reports.
- 2. If the Agency's BOL determines that a release cannot be addressed without additional study and/or a formal CMS, then the Agency's BOL will notify the Permittee that these must be performed. Any proposal made under this provision or any other activity resulting from such proposal, including the invocation of dispute resolution, shall not affect the schedule for implementation of the RFI or of any other portion of the permit.
- 3. If the Agency determines that interim measures are necessary to protect human health or the environment, the Permittee will be notified by way of a permit modification.

SECTION V REPORTING AND NOTIFICATION REQUIREMENTS

The reporting and notification requirements of each section of the RCRA post-closure permit are summarized below. This summary is provided to <u>highlight</u> the various reporting and notification requirements of this permit.

Condition	Submittal	<u>Due Date</u>
SECTION I:	CLOSURE	
C.3	Submit closure by removal demonstration workplan or declare intent to pursue post-closure for the surface impoundment.	Within 30 days after the effective date of this permit
F.1	Certify to the Agency that closure was performed in accordance with the specifications.	Within 60 days after completion of the cover system or by October 1, 1997, whichever is sooner.
SECTION II	: POST-CLOSURE CARE	
D.4	Results of soil core sampling.	With groundwater monitoring report required by Condition III.I.2.
D.7	Permit Modification.	Within 90 days of determining a statistically significant increase of hazardous constituents below the treatment zone.
D.9	Statistical calculations and background values for constituents listed in Condition II.D.3 and revised sampling grid.	Within 30 days of the effective date of the permit.
F.2	Record of the type, location, and quantity of hazardous waste disposed within each cell or disposal unit.	Within 60 days after certification of closure.

Condition	Submittal	<u>Due Date</u>
F.3.a	Record notation on the deed to the facility property regarding hazardous waste management at the site.	Within 60 days after certification of closure.
F.3.b	Certify to Agency that the notation required in F.3.a has been recorded.	Within 60 days after certification of closure.
F.4	Request permit modification to remove the cover or hazardous wastes.	Prior to removing the liner or wastes.
F.5	Certify to the Agency that post- closure care was performed in accordance with the specifications.	Within 60 days after completion of the post-closure care period.

SECTION III: GROUNDWATER DETECTION MONITORING PROGRAM

C.6	Submit a proposal for the replacement of damaged or structurally compromised monitoring wells.	Within 30 days of determining the well is damaged or is structurally compromised.
C.8	Submit the appropriate completed data sheets from the installation and development of each new or replacement well, or the plugging and abandonment of existing wells.	Within 30 days of the date of installation or plugging and abandonment.
C.11	Submit a facility map in a transferrable digital format.	Within 90 days of the effective date of this permit.
H.2	Submit analytical results and measurements And statistical results.	See Condition I.2 for specific reporting dates.
I.4	Report groundwater flow rate and direction	January 15 of every year
I.6	Report elevation of well bottom	January 15 of every year

Condition	Submittal	<u>Due Date</u>
I.9(a)	Notify the Agency of a statistically significant increase	Within 7 days of discovery of increase
I.9(d)	Apply for permit modification establishing compliance monitoring program	Within 90 days of discovery of increase
I.9	Submit an application for a permit modification to establish a corrective action program.	Within 180 days or within 90 days if an engineering feasibility study has been previously submitted.
I.10(b)	Submit a demonstration that a source other than a regulated unit caused the contamination or that the detection is a laboratory artifact.	Within 90 days after discovery of increase
J.1	Submit an application for permit modification.	Within 90 days after determination that the detection monitoring program no longer satisfies 35 IAC Part 724, Subpart F requirements
SECTION IN	V: CORRECTIVE ACTION	- ·
B(2)	Phase I RFI Work Plan	Within 90 days of the effective date of this permit.
B(4)	Phase I RFI Report	To be specified in the Phase I work Plan, subject to Agency approval.
С	Initial Corrective Action Plan	Within 60 days of the effective date of this permit

environment

Condition	Submittal	<u>Due Date</u>
D(1)	Initial Cost Estimate (with the RFI Phase I Work Plan)	Within 120 days of the effective date of this permit
D(1)	Revised Cost estimate for subsequent investigations and eventually for Corrective Measures with the initial submittal of each RFI Workplan and/or CMP Report.	Upon written Agency request
SECTION V	VI: STANDARD CONDITIONS	
6	Complete application for new permit	180 days prior to permit expiration
11	Information requested by Agency and copies of records required to be kept by this permit days	Submittal date to be determined by Agency, but no later than 30
14	Written notification to the Agency of planned physical alterations or additions	15 days prior to planned change
15	Written notification to the Agency of changes which may result in permit noncompliance	Within 15 days of change
16	Application for permit modification indicating permit is to be transferred	At least 90 days prior to transfer date
18	Submission of any information required in a compliance schedule	14 days after each schedule date
19	Report to Agency any non-compliance which may endanger health or	

Condition	Submittal	Due Date
	by telephone	24 hours after discovery
	in writing	5 days after discovery
20	Report all other instances of noncompliance	March 1 of each year along with Annual Report
27	Waste minimization certification	At least annually
28	Notify the Agency in writing of expected receipt of hazardous waste from a foreign source	4 weeks prior to receipt of waste
40	Update arrangements with local authorities	At least annually
41	Implementation of Contingency Plan	As needed
	Notify appropriate state and local agencies with designated response roles	As needed
	Notify appropriate local officials	Immediately, if emergency coordinator's assessment indicates evacuation of local area is advisable
	Notify the Agency (217/782-3637) or Illinois EMA (217/782-7860) if the emergency coordinator determines there has been a release, fire or explosion which could threaten human health or the environment, outside the facility	Immediately after determination made
	Notify Agency and appropriate state and local authorities, in writing that facility is in compliance with 35 Ill. Adm. Code 724.156(h)	Prior to resuming operation in affected areas

Condition	Submittal	<u>Due Date</u>
	Written Report to Agency with details regarding the incident which required implementation of contingency plan	15 days after event
47	Submit annual report required by 35 Ill. Adm. Code 724.175	March 1 of each year
49	Submit Application for permit modification amending closure plan	Within 90 days of discovery of need for modification
50	Written notification to the Agency of closure	45 days prior to beginning closure
54(a)	Adjust closure cost estimate for inflation	Within 60 days prior to anniversary date of the establishment of the financial instrument
54(b)	Revision of closure cost estimate	As needed, within 90 days of discovery of revision
55	Change in financial assurance mechanism for closure	As needed
56	Change in coverage for sudden and non-sudden accidental occurrences	As needed
57	Written notification to the Agency of commencement of voluntary or involuntary bankruptcy proceedings	10 days after commencement of proceeding

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Condition

Submittal

Due Date

ATTACHMENT C: SCOPE OF WORK FOR RFI

(V) RFI Implementation Schedule

Submission of RFI Phase I Work plan.

Within 90 days after effective date of the permit.

Completion of RFI Phase I investigation and submission of Phase I Report and Summary.

Within time frames established by the

Agency following review of the RFI Phase I Work plan.

Submission of RFI Phase II Work plan.

Within 60 days after notification of the need of Phase II by Agency's BOL.

Completion of RFI Phase II investigation and submission of Phase II Report and Summary.

To be negotiated with the Agency's BOL during review

of Phase II Work plan.

Report to the Agency by the following

Quarterly Progress Reports For months of

January-March
April-June
July-September
October-December

May 1 August 1 November 1 February 1

Submission of Implementation Interim

Measures Report

Within 30 days from the date interim measures were determined by the Agency to be necessary.

Submission of RFI Phase III Work plan.

Within 60 days after notification of the need of Phase III by Agency's BOL.

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Condition	Submittal	Due Date
	Completion of RFI Phase III Investigation and Submission of Phase III Report and Summary	To be negotiated with the Agency's BOL during review of Phase III Work plan.
ATTACHMI	ENT H: SPECIAL CONDITIONS	
A.3	Notify Agency of sampling event	Priot to sampling
A.8	Report on repairs to the cover system	Within 30 days of completing repairs
A.9	Permit Modification	Within 30 days of the failure of a given area for the second time
B.1	Permit Modification to supply supplemental information	Within 30 days of the effective date of the permit
C.1	Cross sections of each area	With information required by Condition III.I.2

SECTION VI STANDARD CONDITIONS

GENERAL REQUIREMENTS

- 1. EFFECT OF PERMIT. The existence of a RCRA permit shall not constitute a defense to a violation of the Act or 35 Ill. Adm. Code Subtitle G, except for development, modification or operation without a permit. Issuance of this permit does not convey property rights or any exclusive privilege. Issuance of this permit does not authorize any injury to persons or property or invasion of other private rights, or infringement of state or local law or regulations. (35 Ill. Adm. Code 702.181)
- 2. PERMIT ACTIONS. This permit may be modified, reissued or revoked for cause as specified in 35 Ill. Adm. Codes 703.270 through 703.273 and Section 702.186. The filing of a request by the Permittee for a permit modification or revocation, or a notification of planned changes or anticipated noncompliance on the part of the Permittee does not stay the applicability or enforceability of any permit condition. (35 Ill. Adm. Code 702.146)
- 3. SEVERABILITY. The provisions of this permit are severable, and if any provision of this permit, or the application of any provision of this permit to any circumstance is held invalid, the application of such provision to other circumstances and the remainder of this permit shall not be affected thereby. (35 Ill. Adm. Code 700.107)
- 4. PERMIT CONDITION CONFLICT. In case of conflict between a special permit condition and a standard condition, the special condition will prevail. (35 Ill. Adm. Code 702.160)
- 5. DUTY TO COMPLY. The Permittee shall comply with all conditions of this permit except the extent and duration such noncompliance is authorized by an emergency permit. Any permit noncompliance constitutes a violation of the Act and is grounds for an enforcement action; permit revocation or modification; or for denial of a permit renewal application. (35 Ill. Adm. Code 702.141 and 703.242)
- 6. DUTY TO REAPPLY. If the Permittee wishes to continue an activity allowed by this permit after the expiration date of this permit, the Permittee must apply for a new permit at least 180 days before this permit expires, unless written permission for a later date has been granted by the Agency. (35 Ill. Adm. Codes 702.142 and 703.125)
- 7. PERMIT EXPIRATION. This permit and all conditions herein will remain in effect beyond the permit's expiration date if the Permittee(s) has submitted a timely and complete application (see 35 Ill. Adm. Code 703.181-703.209) and through no fault of the Permittee(s) the Agency has not issued a new permit as set forth in 35 Ill. Adm. Code 702.125.

- 8. NEED TO HALT OR REDUCE ACTIVITY NOT A DEFENSE. It shall not be a defense for the Permittee in an enforcement action that it would have been necessary to halt or reduce the permitted activity in order to maintain compliance with the conditions of this permit. (35 Ill. Adm. Code 702.143)
- 9. DUTY TO MITIGATE. In the event of noncompliance with the permit, the permittee shall take all reasonable steps to minimize releases of hazardous substances to the environment. The Permittee shall carry out such measures as may be necessary to prevent significant adverse impacts on human health or the environment. (35 Ill. Adm. Code 702.144)
- 10. PROPER OPERATION AND MAINTENANCE. The Permittee shall at all times properly operate and maintain all facilities and systems of treatment and control (and related appurtenances) which are installed or used by the Permittee to achieve compliance with the conditions of this permit. Proper operation and maintenance includes effective performance, adequate funding, adequate operator staffing and training, and adequate laboratory, and process controls, including appropriate quality assurance procedures. This provision requires the operation of back-up or auxiliary facilities or similar systems only when necessary to achieve compliance with the conditions of the permit. (35 Ill. Adm. Code 702.145)
- 11. DUTY TO PROVIDE INFORMATION. The Permittee shall furnish to the Agency, within a reasonable time, but no later than thirty days, any relevant information which the Agency may request to determine whether cause exists for modifying, revoking and reissuing or terminating this permit, or to determine compliance with this permit. The Permittee shall also furnish to the Agency, upon request, copies of records required to be kept by this permit. (35 Ill. Adm. Code 702.148)
 - Furthermore, the Permittee shall provide to the Agency any documentation that is required by the Act or regulations.
- 12. INSPECTION AND ENTRY. The Permittee shall allow an authorized representative of the Agency, upon the presentation of credentials and other documents as may be required by law, to:
 - a. Enter at reasonable times upon the Permittee's premises where a regulated facility or activity is located or conducted, or where records must be kept under the conditions of this permit;
 - b. Have access to and copy, at reasonable times, any records that must be kept under the conditions of this permit;

- c. Inspect at reasonable times any facilities, equipment (including monitoring and control equipment), practices, or operations regulated or required under this permit; and
- d. Sample or monitor, at reasonable times, for the purposes of assuring permit compliance or as otherwise authorized by the appropriate statute, any substances or parameters at any location. (35 Ill. Adm. Code 702.149)

13. MONITORING AND RECORDS. (35 Ill. Adm. Code 702.150)

- a. Samples and measurements taken for the purpose of monitoring shall be representative of the monitored activity. The method used to obtain a representative sample of the waste must be the appropriate method from Appendix A of 35 Ill. Adm. Code 721. Laboratory methods must be those specified in Test Methods for Evaluating Solid Waste: Physical/Chemical Methods, SW-846, latest versions; Methods for Chemical Analysis of Water and Wastes, EPA-600/4-79-020, latest versions; or an equivalent method as specified in the approved Waste Analysis Plan.
- b. The Permittee shall retain records of all monitoring information, including all calibration and maintenance records and all original strip chart recordings for continuous monitoring instrumentation, copies of all reports and records required by this permit, and records of all data used to complete the application for this permit for a period of at least 3 years from the date of the sample, measurement, report or application. These periods may be extended by request of the Agency at any time. The permittee shall maintain records from all groundwater monitoring wells and associated groundwater surface elevations, for the active life of the facility, and for disposal facilities for the post-closure care period as well.
- c. Records of monitoring information shall include:
 - i. The date(s), exact place, and time of sampling or measurements;
 - ii. The individual(s) who performed the sampling or measurements;
 - iii. The date(s) analyses were performed;
 - iv. The individual(s) who performed the analyses;
 - v. The analytical technique(s) or method(s) used; and
 - vi. The result(s) of such analyses. (35 Ill. Adm. Code 702.150)

- 14. REPORTING PLANNED CHANGES. The permittee shall give notice to the Agency as soon as possible of any planned physical alterations or additions to the permitted facility. For a new hazardous waste management facility, the permittee shall not commence treatment, storage or disposal of hazardous waste; and for a facility being modified the permittee shall not treat, store or dispose of hazardous waste in the modified portion of the facility, until:
 - a. The permittee has submitted to the Agency by certified mail or hand delivery a letter signed by the permittee and a registered professional engineer stating that the facility has been constructed or modified in compliance with the permit; and
 - b. 1. The Agency has inspected the modified or newly constructed facility and finds it is in compliance with the condition of the permit; or
 - 2. If, within 15 days of the date of submission of the letter in paragraph (a), the permittee has not received notice from the Agency of its intent to inspect, prior inspection is waived and the permittee may commence treatment, storage or disposal of hazardous waste. (35 Ill. Adm. Codes 703.244 and 702.152(a))
- 15. ANTICIPATED NONCOMPLIANCE. The Permittee shall give advance notice to the Agency of any planned changes in the permitted facility or activity which may result in noncompliance with permit requirements, regulations, or the Act. For a new facility, the permittee shall not treat, store or dispose of hazardous waste; and for a facility being modified, the permittee shall not treat, store or dispose of hazardous waste in the modified portion of the facility, except as provided in Section 703.280, until:
 - i. The permittee has submitted to the Agency by certified mail or hand delivery a letter signed by the permittee and a registered professional engineer stating that the facility has been constructed or modified in compliance with the permit; and

ii. Either:

- a. The Agency has inspected the modified or newly constructed facility and finds it is in compliance with the conditions of the permit; or
- b. Within 15 days after the date submission of the letter in section I above, the permittee has not received notice from the Agency of its intent to inspect, the permittee may commence treatment, storage or disposal of hazardous waste.

(35 Ill. Adm. Codes 702.152(b) and 703.247)

- 16. TRANSFER OF PERMITS. This permit is not transferable to any person except after notice to the Agency. The Agency may require modification of the permit to change the name of the permittee and incorporate such other requirements as may be necessary under the appropriate Act. (See 35 Ill. Adm. Codes 703.260 and 703.270, in some cases modification is mandatory.) (35 Ill. Adm. Code 702.152(c)) The transferee shall submit any information the Agency shall request. The Agency determines whether the transferee is of sufficient good character.
- 17. MONITORING REPORTS. Monitoring results shall be reported at the intervals specified in the permit. (35 Ill. Adm. Code 702.152(d))
- 18. COMPLIANCE SCHEDULES. Reports of compliance or noncompliance with, or any progress reports on, interim and final requirements contained in any compliance schedule of this permit shall be submitted no later than specified in 35 Ill. Adm. Codes 702.162 and 702.152(e).

19. TWENTY-FOUR HOUR REPORTING.

- a. The Permittee shall report to the Agency any noncompliance with the permit, regulations, the Act or any other matter which may endanger human health or the environment. Any such information shall be reported orally within 24 hours from the time the Permittee becomes aware of the following circumstances. This report shall include the following:
 - i. Information concerning the release of any hazardous substance, agrichemical or pesticide that may cause harm to public drinking water supplies.
 - ii. Information concerning the release or discharge of any hazardous waste or of a fire or explosion at the HWM facility, which could threaten the environment or human health outside the facility.
- b. The description of the occurrence and its cause shall include:
 - i. Name, address, and telephone number of the owner or operator;
 - ii. Name, address, and telephone number of the facility;
 - iii. Date, time, and type of incident;
 - iv. Name and quantity of material(s) involved;

- v. The extent of injuries, if any;
- vi. An assessment of actual or potential hazards to the environment and human health outside the facility, where applicable; and
- vii. Estimated quantity and disposition of recovered material that resulted from the incident.
- c. A written submission shall also be provided within 5 days of the time the Permittee becomes aware of the circumstances. The written submission shall contain a description of the noncompliance and its cause; the period of noncompliance including exact dates and times and if the noncompliance has not been corrected; the anticipated time it is expected to continue; and steps taken or planned to reduce, eliminate, and prevent recurrence of the noncompliance. The Agency may waive the five day written notice requirement in favor of a written report within fifteen days. (35 Ill. Adm. Codes 702.152(f) and 703.245(b))
- 20. OTHER NONCOMPLIANCE. The Permittee shall report all instances of noncompliance not otherwise required to be reported under Standard Conditions 17, 18, and 19, at the time monitoring reports, as required by this permit, are submitted. The reports shall contain the information listed in Standard Condition 19. (35 Ill. Adm. Code 702.152(g))
- 21. OTHER INFORMATION. Where the Permittee becomes aware that it failed to submit any relevant facts in the permit application, or submitted incorrect information in a permit application or in any report to the Agency, the Permittee shall promptly submit such facts or information. (35 Ill. Adm. Code 702.152(h))
- 22. REPORTING REQUIREMENTS. The following reports required by 35 Ill. Adm. Code 724 shall be submitted in addition to those required by 35 Ill. Adm. Code 702.152 (reporting requirements):
 - a. Manifest discrepancy report: if a significant discrepancy in a manifest is discovered, the permittee must attempt to reconcile the discrepancy with the waste generator or transporter. If the discrepancy is not resolved within 15 days after receiving the waste, the permittee must immediately submit to the Agency a letter describing the discrepancy and attempts to reconcile it and a copy of the manifest or shipping paper at issue. (35 Ill. Adm. Code 724.172(b))

- Unmanifested waste report: The permittee must submit to the Agency within 15 days of receipt of unmanifested waste an unmanifested waste report on EPA form 8700-13B. (35 Ill. Adm. Code 724.176)
- c. Annual report: an annual report must be submitted covering facility activities during the previous calendar year. (35 Ill. Adm. Code 724.175)
- 23. SUBMITTAL OF REPORTS OR OTHER INFORMATION. All written reports or other written information required to be submitted by the terms of this permit shall be sent to:

Illinois Environmental Protection Agency Bureau of Land Planning and Reporting Section 2200 Churchill Road Post Office Box 19276 Springfield, Illinois 62794-9276

- 24. SIGNATORY REQUIREMENT. All permit applications, reports or information submitted to the Agency shall be signed and certified as required by 35 Ill. Adm. Code 702.126 and 702.151.
- 25. CONFIDENTIAL INFORMATION. Any claim of confidentiality must be asserted in accordance with 35 Ill. Adm. Code 702.103 and 161.
- 26. DOCUMENTS TO BE MAINTAINED AT FACILITY SITE. The Permittee shall maintain at the facility, until closure is complete, the following documents and amendments, revisions and modifications to these documents:
 - a. Waste analysis plan as required by 35 Ill. Adm. Code 724.113(b) and this permit.
 - b. Personnel training documents and records as required by 35 Ill. Adm. Code 724.116(d) and this permit.
 - c. Contingency plan as required by 35 Ill. Adm. Code 724.153(a) and this permit.
 - d. Closure plan as required by 35 Ill. Adm. Code 724.212(a) and this permit.
 - e. Cost estimate for facility closure as required by 35 Ill. Adm. Code 724.242(d) and this permit.

- f. Operating record as required by 35 Ill. Adm. Code 724.173 and this permit.
- g. Inspection schedules as required by 35 Ill. Adm. Code 724.115(b) and this permit.
- 27. WASTE MINIMIZATION. The Permittee shall certify at least annually that the Permittee has a program in place to reduce the volume and toxicity of hazardous waste that he generates to the degree determined by the Permittee to be economically practicable, and the proposed method of treatment, storage, or disposal is that practicable method currently available to the Permittee which minimizes the present and future threat to human health and the environment, in accordance with 35 Ill. Adm. Code 724.173(b)(9).

GENERAL FACILITY STANDARDS

- 28. NOTICE OF WASTE FROM A FOREIGN SOURCE. The permittee who has arranged to receive hazardous waste from a foreign source must notify the Agency in writing at least four weeks in advance of the date the waste is expected at the facility. (35 Ill. Adm. Code 724.112(a))
- 29. NOTICE OF WASTE FROM OFF-SITE. The Permittee who receives hazardous waste from an off-site source (except where the Permittee is also the generator), must inform the generator in writing that the permittee has the appropriate permits for, and will accept, the waste the generator is shipping. The Permittee must keep a copy of this written notice as part of the facility operating record. (35 Ill. Adm. Code 724.112(b))
- 30. GENERAL WASTE ANALYSIS. The Permittee shall comply with the procedures described in the approved waste analysis plan. (35 Ill. Adm. Code 724.113)
- 31. SECURITY. The Permittee shall comply with the security provisions of 35 Ill. Adm. Code 724.114(b) and (c).
- 32. GENERAL INSPECTION REQUIREMENTS. The Permittee shall follow the approved inspection schedule. The Permittee shall remedy any deterioration or malfunction discovered by an inspection as required by 35 Ill. Adm. Code 724.115(c). Records of inspections shall be kept at the facility as required by 35 Ill. Adm. Code 724.115(d).
- 33. PERSONNEL TRAINING. The Permittee shall conduct personnel training as required by 35 Ill. Adm. Code 724.116 and shall maintain training documents and records as required by 35 Ill. Adm. Code 724.116(d) and (e).

34. GENERAL REQUIREMENTS FOR IGNITABLE, REACTIVE, OR INCOMPATIBLE WASTE. The Permittee shall comply with the requirements of 35 Ill. Adm. Code 724.117.

PREPAREDNESS AND PREVENTION

- 35. DESIGN AND OPERATION OF FACILITY. The Permittee shall maintain and operate the facility to minimize the possibility of fire, explosion, or any unplanned sudden or non-sudden release of hazardous substance, agrichemical, or pesticide to air, soil, or surface water which could threaten human health or the environment. (35 Ill. Adm. Code 724.131) Additionally, the Permittee shall remediate any release of a hazardous substance, agrichemical or pesticide.
- 36. REQUIRED EQUIPMENT. The Permittee shall equip the facility with the equipment set forth in the approved contingency plan, as required by 35 Ill. Adm. Code 724.132.
- 37. TESTING AND MAINTENANCE OF EQUIPMENT. The Permittee shall test and maintain the equipment specified in condition 36 as necessary to assure its proper operation in time of emergency. Such testing and maintenance activities are set forth in the approved inspection schedule. (35 Ill. Adm. Code 724.133)
- 38. ACCESS TO COMMUNICATIONS OR ALARM SYSTEM. The Permittee shall maintain access to the communications or alarm system as required by 35 Ill. Adm. Code 724.134.
- 39. REQUIRED AISLE SPACE. The Permittee shall maintain aisle space as required by 35 Ill. Adm. Code 724.135 and National Fire Protection Association (NFPA) requirements.
- 40. ARRANGEMENTS WITH STATE AND LOCAL AUTHORITIES AND EMERGENCY RESPONSE CONTRACTORS. The Permittee shall attempt to make emergency response arrangements with State and local authorities and agreements with State emergency response teams and emergency response contractors and equipment suppliers as required by 35 Ill. Adm. Code 724.137. If State or local officials refuse to enter in preparedness and prevention arrangements with the Permittee, the Permittee must document this refusal in the operating record.

CONTINGENCY PLAN

- 41. IMPLEMENTATION OF PLAN. The provisions of the contingency plan must be carried out by the Permittee immediately whenever there is a fire, explosion or release of hazardous waste or hazardous waste constituents which could threaten human health or the environment (35 Ill. Adm. Code 724.151(b)). At a minimum, this includes any fire or explosion which occurs in an area where hazardous waste is being managed (treated, stored or disposed) (35 IAC 703.241). Within 15 days of any incident that requires implementation of the contingency plan, the owner or operator must submit a written report to the Agency as required by 35 Ill. Adm. Code 724.156(j).
- 42. COPIES OF PLAN. A copy of the contingency plan, including any revisions, must be maintained at the facility and submitted to all local police and fire departments, hospitals and state and local emergency response teams as required by 35 Ill. Adm. Code 724.153.
- 43. AMENDMENTS TO PLAN. The Permittee shall review and immediately amend, if necessary, the contingency plan, as required by 35 Ill. Adm. Code 724.154.
- 44. EMERGENCY COORDINATOR. A trained emergency coordinator shall be available at all times in case of an emergency as required by 35 Ill. Adm. Code 724.155 and 724.156.

MANIFEST SYSTEM RECORD KEEPING AND REPORTING

- 45. MANIFEST SYSTEM. The Permittee shall comply with the manifest requirements of 35 Ill. Adm. Code 724.171, 724.172 and 724.176.
- 46. OPERATING RECORD. The Permittee shall maintain a written operating record at the facility in accordance with 35 Ill. Adm. Code 724.173.
- 47. ANNUAL REPORT. The Permittee shall prepare and submit an annual report to the Agency prior to March 1st of each year in accordance with the requirements of 35 Ill. Adm. Code 724.175.

CLOSURE

- 48. PERFORMANCE STANDARD. The Permittee shall close the facility as required by 35 Ill. Adm. Code 724.211 and in accordance with the approved closure plan.
- 49. AMENDMENT TO CLOSURE PLAN. The Permittee must amend the closure plan whenever there is a change in the expected year of closure or whenever a change in the facility operation plans or facility design affects the closure plan pursuant to 35 Ill. Adm. Code 724.212(c).
- 50. NOTIFICATION OF CLOSURE. The Permittee shall notify the Agency at least 45 days prior to the date it expects to begin closure. (35 Ill. Adm. Code 724.212(d))
- 51. TIME ALLOWED FOR CLOSURE. After receiving the final volume of hazardous waste, the Permittee shall treat or remove from the site all hazardous waste and complete closure activities in accordance with the schedule(s) specified in the closure plan. (35 Ill. Adm. Code 724.213)
- 52. DISPOSAL AND/OR DECONTAMINATION OF EQUIPMENT. When closure is completed, the Permittee shall decontaminate and/or dispose of all facility equipment and structures as required by the approved closure (35 Ill. Adm. Code 724.214) plan.
- 53. CERTIFICATION OF CLOSURE. When closure is completed, the Permittee shall submit certification to the Agency in accordance with 35 Ill. Adm. Code 724.215 that the facility has been closed as specified by the approved closure plans.
- 54. COST ESTIMATE FOR FACILITY CLOSURE. The Permittee's original closure cost estimate, prepared in accordance with 35 Ill. Adm. Code 724.242, must be:
 - a. Adjusted for inflation either 60 days prior to each anniversary of the date on which the first closure cost estimate was prepared or if using the financial test or corporate guarantee, within 30 days after close of the firm's fiscal year.
 - b. Revised whenever there is a change in the facility's closure plan increasing the cost of closure.
 - c. Kept on record at the facility and updated. (35 Ill. Adm. Code 724.242)
 - d. Made immediately available to Agency personnel upon Agency request.

- 55. FINANCIAL ASSURANCE FOR FACILITY CLOSURE. The Permittee shall demonstrate compliance with 35 Ill. Adm. Code 724.243 by providing documentation of financial assurance, as required by 35 Ill. Adm. Code 724.251, in at least the amount of the cost estimates required by the previous Permit Condition. Changes in financial assurance mechanisms must be approved by the Agency pursuant to 35 Ill. Adm. Code 724.243.
- 56. LIABILITY REQUIREMENTS. The Permittee shall demonstrate continuous compliance with the requirements of 35 Ill. Adm. Code 724.247 and the documentation requirements of 35 Ill. Adm. Code 724.251.
- 57. INCAPACITY OF OWNERS OR OPERATORS, GUARANTORS, OR FINANCIAL INSTITUTIONS. The Permittee shall comply with 35 Ill. Adm. Code 724.248 whenever necessary.

LAND DISPOSAL RESTRICTIONS

- 58. DISPOSAL PROHIBITION. Any waste identified in 35 Ill. Adm. Code Part 728, Subpart C, or any mixture of such a waste with non-restricted wastes, is prohibited from land disposal unless it meets the standards of 35 Ill. Adm. Code Part 728, Subpart D, or unless it meets the requirements for exemptions under Subpart C. "Land disposal" means placement in or on the land and includes, but is not limited to, placement in a landfill, surface impoundment, waste pile, injection well, land treatment facility, or vault intended for disposal.
- 59. DILUTION PROHIBITION. The Permittee shall not in any way dilute a restricted waste or residual from treatment of a restricted waste as a substitute for adequate treatment in order to achieve compliance with 35 Ill. Adm. Code 728, Subpart D (35 Ill. Adm. Code 728.103).
- 60. WASTE ANALYSIS.
 - a. The Permittee must test his waste or extract developed, using the test method identified in Appendix I of 40 CFR Part 268, or use knowledge of the waste, to determine if the waste is restricted from land disposal.
 - b. For any waste with treatment standards expressed as concentrations in the waste extract, the Permittee must test the treatment residues or an extract of such residues developed using the test method described in Appendix I of 40 CFR Part 268, to assure that the treatment residues or extract meet the applicable treatment standard.

c. If the treatment residues do not meet the treatment standards, or if the Permittee ships any restricted wastes to a different facility, the Permittee shall comply with the requirements applicable to generators in 35 Ill. Adm. Code 728.107 and 728.150(a)(1).

61. STORAGE RESTRICTIONS

- a. The Permittee shall not store hazardous wastes restricted from land disposal under 35 Ill. Adm. Code Part 728, Subpart C unless such wastes are stored only in containers or tanks, and are stored solely for the purpose of the accumulation of such quantities as is necessary to facilitate proper recovery, treatment, or disposal, and: (1) each container is clearly marked to identify its contents and the date each period of accumulation begins; (2) each tank is clearly marked to identify its contents, the quantity of each hazardous waste received, and the date each period of accumulation begins. In lieu of marking each tank with the required information, the Permittee may maintain such information as part of the operating record of the facility (35 Ill. Adm. Code 728.150).
- b. The Permittee must comply with the operating record requirements of 35 Ill. Adm. Code 724.173.
- 62. NEW DETERMINATIONS OF PROHIBITED WASTES. Wastes which are prohibited from land disposal under 35 Ill. Adm. Code Part 728, Subpart C, or for which treatment standards have been established under 35 Ill. Adm. Code 728, Subpart D, subsequent to the date of issuance of this permit, shall be subject to the conditions number 58 through 61 above.
- 63. DEFINITIONS. Within the scope of this permit "days" refers to calendar days unless otherwise specified.

WRW:bjh\96982S.WPD

ATTACHMENT A

GROUNDWATER MONITORING ATTACHMENTS

UNO-VEN COMPANY Chicago Refinery

1978030004

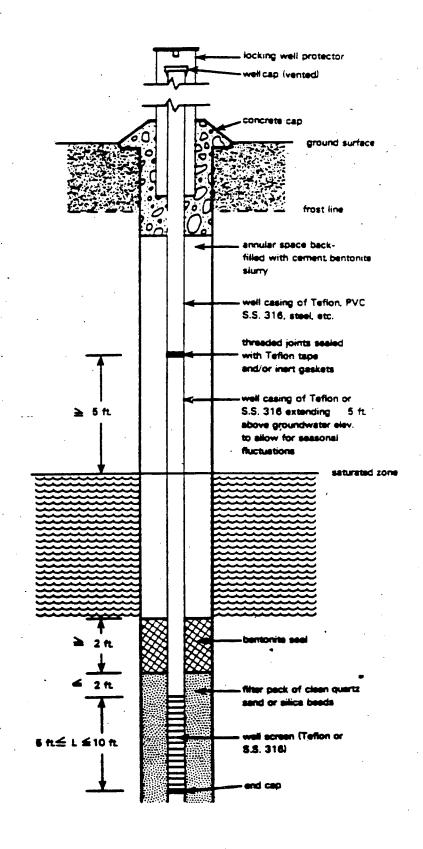
RCRA LOG NO. B-162

IEPA MONITOR WELL PLUGGING PROCEDURES (test boring)

	Well Construction	Plugging Procedure
Wells	I-Aif backfilled with cement grout above bentonite seal and/or sandpack:	 Cut casing off at desired depth. Mix neat cement slurry (5 gal. water per 94 lb. bag cement) Insert tremi pipe (1" i.d. pvc) into well and extend to bottom. Slowly pump slurry under low pressure through tremi pipe. Slowly withdraw tremi pipe - making sure bottom of pipe remains below pure slurry. Continue slow pumping until all formation water and the watery slurry mix is displaced from top of casing.
I. Unconsolidated Sediment	I-Bif backfilled with soft sediments (cuttings) above bentonite seal and/or sandpack:	 Knock out and remove thin surface concrete plug, if present. Re-auger entire length of well. Remove well casing from re-augered borehole. Mix neat cement slurry (5 gal. water per 94 lb. bag cement). Insert tremi pipe (1" i.d. pvc) into augers and extend to bottom. Slowly pump slurry under low pressure through tremi pipe. Continue slow pumping until all formation water and the watery slurry mix is displaced from top of casing. Slowly withdraw tremi pipe - making sure bottom of pipe remains below pure slurry. Pull a flight of augers (5' if in unstable materials and hole collapse is likely or 10' if in competent material and collapse is unlikely). Top off cement slurry after each flight is removed.
	I-Cif monitor well construction is unknown:	1. Follow procedures in I-A.
II. Bedrock Wells	II-AAll bedrock monitor wells:	 Cut casing off at desired depth. Mix neat cement slurry (5 gal. water per 94 lb. bag cement). Insert tremi-pipe (1" i.d. pvc) into well and extend to bottom. Slowly pump slurry under low pressure through tremi pipe. Slowly withdraw tremi pipe making sure bottom of pipe remains below pure slurry. Continue slow pumping until all formation water and the watery slurry mix is displaced from top of casing.

JM:tk:2/6/31

Monitoring Well Diagram



)	Illinois	Enviro	nmen	ital Pi	rotecti	ion Ag	gend	су		Fie	ble	Boi	ring	L	og .	Pa	Ge	of	
Site Fi	ie No.:			c	ounty_					ŧ	3 orin	ng N	lo			Mo	nitor \	Well N	o	
ł	le Name _																			
1). No																			
1	angle																			
1	Location		•							1			AM				1		onnel	
Boring	EDCBRION											_	very	_	ows!		G ·			
Drilling	Equipme	ent									Sample No	Sample Type	Sample Recovery	Penetrometer	Valves (Blows)	or HNU	O H H			
£lev.			DES	CRIPT	ION			-	De in	pth feet	Salnp	Samp	Samp	Penetr	> Z	OVA (REN	1ARKS	
-							,		لسسله											

Illinois Environmental Protection	
SITE #: COUNTY:	
SITE NAME:	WELL POSITION - UPGRAD, DINGRAD, UNKN (CIRCLE ONE)
STATE PLANE COORDINATE: X Y (4) LATITUDE:_	
SURVEYED BY:	REGISTRATION #:
DRILLING CONTRACTOR:	DRILIER:
@EOLOGIST:	FIRM:
DRILLING METHOD:DR	ILLING FLUIDS (TYPE):
DATE STARTED: DATE FINISHED:	
REPORT FORM COMPLETED BY:	DATE:
ANNULAR SPACE DETAILS	ELEVATIONS DEPTHS (.01 ft) (MSL) (BGS)
	TOP OF PROTECTIVE CASING
TYPE OF SURFACE SEAL:	TOP OF RISER PIPE
The state of the s	GROUND SURFACE
TYPE OF ANNULAR SEALANT:	TOP OF ANNULAR SEALANT
INSTALLATION METHOD:	
SETTING TIME:	
	DEPTH TO WATER
.	
TYPE OF BENTONITE SEAL - GRANULAR, PELLET, SLURRY (CIRCLE ONE)	
INSTALLATION METHOD:	TOP OF SEAL
SETTING TIME:	TOP OF SANDPACK
	TOP OF SCREEN
TYPE OF SAND PACK:	BOTTOM OF SCREEN
GRAIN SIZE: (SEVE SIZE)	BOTTOM OF WELL
INSTALLATION METHOD:	BOTTOM OF BOREHOLE
•	. REFERENCED TO A MATIONAL GEODETIC MERTICAL BATLAN
	MEASUREMENTS
	DIAMETER OF BOREHOLE (in)
WELL CONSTRUCTION	ID OF RISER PIPE (in)
MATERIALS	PROTECTIVE CASING LENGTH (#)
(CIRCLE ONE)	RISER PIPE LENGTH (ft) BOTTOM OF SCREEN TO END CAP(ft)
PROTECTIVE CASING SS304, SS318, PTFE, PVC OR OTHER: RISER PIPE ABOVE W.T. SS304, SS316, PTFE, PVC OR OTHER:	SCREEN LENGTH (14 SLOT TO LAST SLOT)
RISER PIPE BELOW W.T. SSS04, SSS16, PIPE, PVC OR OTHER:	TOTAL LENGTH OF CASING (ft)
SCREEN SS304, SS316, PTFE, PVC OR OTHER:	SCREEN SLOT SIZE
(946325)	** NANO-SLOTTED WELL SCREDIS ARE UNICCOPTABLE

ATTACHMENT B

INSPECTION SCHEDULES FOR CLOSURE AND POST-CLOSURE

UNO-VEN COMPANY Chicago Refinery

1978030004

RCRA LOG NO. B-162

CLOSURE PERIOD INSPECTION FORM LAND TREATMENT FACILITY **UNO-VEN Refinery** Lemont, Illinois

	GENERAL INFORMATION Read the Inspection Form Instructions and Inspections Procedures on Page 9 of This
•	Form Before Conducting the Inspection
	10/11 Dejore Comments me Inspection
	NAME OF INSPECTOR:
	COMPANY:
	DATE:
	TIME: AM or PM
	WEATHER:
	TEMPERATURE°F
	SUNNY \square CLOUDY \square WINDY \square RAINY \square SNOWY \square
	GROUND CONDITIONS: WET □ DRY □ SNOW □
	IS THIS A SCHEDULED INSPECTION? ☐ YES ☐ NO
	IF NO, EXPLAIN:
	CLOSURE PHASE: PRE-COVER CONSTRUCTION
	☐ COVER CONSTRUCTION
	□ POST COVER CONSTRUCTION
	POST COVER CONSTRUCTION
	MONITORING WELL INSPECTION
	MONTONING WEED MOTEURION
	ARE THE MONITORING WELLS LOCKED?
	IF NO, REFERENCE SPECIFIC WELL(S) AND EXPLAIN:
	ARE GUARD POSTS OR PROTECTIVE CASINGS DAMAGED? ☐ YES ☐ NO
	IF YES, REFERENCE SPECIFIC WELL(S) AND EXPLAIN:

11)	ARE THE WELL LOCKS OPERABLE?	☐ YES ☐ NO		
	IF NO, REFERENCE SPECIFIC WELL(S) AND EX	PLAIN;		
12) NO	ARE ID NUMBERS CLEARLY VISIBLE ON WEL	L CASING?	□ YES □	
	IF NO, REFERENCE SPECIFIC WELL(S) AND EX	PLAIN:		
13)	ARE THERE GAPS OR CRACKS IN THE SURFACTIFYES, REFERENCE SPECIFIC WELL(S) AND EX			
	PERIMETER FENCE INS	PECTION		
14)	ANY SIGNS OF UNAUTHORIZED ENTRY?	☐ YES	□ NO	
15)	ARE ANY FENCE POSTS DAMAGED?	☐ YES	□ NO	
16)	DOES FENCE APPEAR IN GOOD CONDITION?	☐ YES	□ NO	
17)	ARE ANY SIGNS MISSING?	☐ YES	□ NO	
18)	ARE THE SIGNS READABLE?	☐ YES	□ NO	
19)	UPON ARRIVAL, WERE THE GATES LOCKED?	☐ YES	□ NO	
COMIN	MENTS:			
J				

COVER SYSTEM INSPECTION

20)	IS THERE ANY	Y SETTLING, SUB	SIDENCE, OR EROSION E	VIDENT?
	AREA I	☐ YES	□ NO	
	AREA II	☐ YES	□ NO	
	AREA III	☐ YES	□ NO	
	AREA IV	☐ YES	□ NO	
	IF YES, NOTE	AREA NUMBER A	ND EXPLAIN:	
21)	ARE THERE A	NY TREES OR SH	RUBS GROWING IN THE (COVER SYSTEM?
	AREA I	☐ YES	□ NO	
	AREA II	☐ YES	□ NO	
	AREA III	☐ YES	□ NO	4
	AREA IV	☐ YES	□ NO	
	IF YES, NOTE	AREA AND EXPL	IN:	
		· · ·		

22)		SUCH THAT		GHT IMPEDE INSPECTION OF OF SUBSIDENCE OR EROSIO	
	AREA I	☐ YES	□ NO		
	AREA II	☐ YES	□ NO		•
-	AREA III	☐ YES	\square NO		
	AREA IV	☐ YES	□ NO		
	IF YES, NOTE ARE	EA AND EXPL	AIN:		
23)	ARE THERE ANY	SIGNS OF STR	RESSED VEGI	ETATION OR NO VEGETATION	
	AREA I	YES	□ NO	DITTION ONLY OF BOBINITOR	•
	AREA II	☐ YES	□ NO		
	AREA III	☐ YES	□ NO		
	AREA IV	☐ YES	□ NO		
	IF YES, NOTE ARE	EA AND EXPL	AIN:		
•					
24)	ARE THERE ANY	SIGNS OF BUF	RROWING AN	NIMALS IN THE COVER SYSTEM	<u></u> -
	AREA I	☐ YES	□ NO		
	AREA II	☐ YES	□ NO		
	AREA III	☐ YES	□ NO		
	AREA IV	☐ YES	□ NO		
	IF YES, NOTE ARE	EA AND EXPL	AIN:		
			·-		

ARE THERE ANY SURFACE DISTURBANCES FROM VEHICLES OR OTHER

25)

PHYSICAL ACTIONS?

	AREA I	☐ YES	□ NO		
	AREA II	☐ YES	□ NO		
	AREA III	☐ YES	□ NO		
	AREA IV	☐ YES	□ NO		
	IF YES, NOTE	AREA AND EXPL	AIN:		·
				,	
	-				
26)	IS THERE ANY	·		THE COVER SYSTE	M?
	AREA I	☐ YES	□ NO		
	AREA II	☐ YES	□ NO	`.	
	AREA III	☐ YES	□ NO		
	AREA IV	☐ YES	□ NO		
	IF YES, NOTE	AREA AND EXPL	AIN:		
_			<u>.</u>		
					
	STO	ORMWATER MA	NAGEMENT S	YSTEM INSPECTION	<u>ON</u>
Inter	mittent Stream				
27)	ARE THERE AT	YY OBSTRUCTIO	NS TO FLOW?	☐ yes	. NO
,	IF YES, EXPLA				
		-			
			· · · · · · · · · · · · · · · · · · ·		
28)	IS THERE ANY	Y EVIDENCE OF E	EROSION OR D	ETERIORATION T	HAT COULD
,	- ·			EFFECTIVE OR TH	-
	DAMAGE ANY	OF THE LANDFA	RM PLOT COV	ER SYSTEMS?	
	□ ves □	NO			

	IF YES, EXPLAIN:
Culv	erts
>	ARE THE INVERTS FREE OF DEBRIS?
29)	ARE THE INVERTS FREE OF DEBRIS?
30)	IS THERE ANY EVIDENCE OF EROSION OR DETERIORATION?
	☐ YES ☐ NO
	IF YES, EXPLAIN:
Grass	Waterways and Diversion Channels (Applicable to Areas III and IV only)
31)	IS THERE ANY EVIDENCE OF EROSION OR DETERIORATION THAT COULD RENDER THE STRUCTURE OR CHANNEL INEFFECTIVE OR THAT COULD DAMAGE ANY OF THE LANDFARM PLOT COVER SYSTEMS?
	☐ YES ☐ NO
	IF YES, EXPLAIN:
(2)	IS THERE EXCESSIVE SILTATION? LYES NO
	IF YES, EXPLAIN:
(3)	IS THE VEGETATION IN THE CHANNELS ADEQUATE? YES NO

ARE THERE A	YY OBSTRUCTIO	NS TO FLOW?	☐ YES	□ NO
IF YES, EXPLA	IN:			
oorary Run-On an	d Run-Off Contro	l System		
AS STRAW	BALES, SILT F			
AREA I	☐ YES	□ NO		
AREA II	☐ YES	□ NO		
AREA III	☐ YES	□ NO		
AREA IV	☐ YES	□ NO		\$
	IF YES, EXPLA FORTATY RUN-On an ARE THE TEM AS STRAW FUNCTIONAL AREA II AREA III AREA III	IF YES, EXPLAIN: Orary Run-On and Run-Off Control ARE THE TEMORARY RUN-0N AS STRAW BALES, SILT F FUNCTIONAL CONDITION? AREA I YES AREA II YES AREA III YES	ARE THE TEMORARY RUN-0N AND RUN-OFF CAS STRAW BALES, SILT FENCES, AND DEFUNCTIONAL CONDITION? AREA I YES NO AREA II YES NO AREA III YES NO	IF YES, EXPLAIN: OF ARE THE TEMORARY RUN-0N AND RUN-OFF CONTROL MEAN AS STRAW BALES, SILT FENCES, AND DIVERSION CHE FUNCTIONAL CONDITION? AREA I YES NO AREA II YES NO AREA III YES NO

BENCHMARK INSPECTION

☐ YES I	□ NO			·		·:
IF NO, EXPLAI	N:					
					*.	
ARE THE MON	NUMENTS WHIC	H DELI	NEATE	THE SAN	APLING (GRID FOR
UNSATURATE	D ZONE MON	ITORIN	IG PRO	GRAM V	/ISIBLE,	ACCESS
CLEARLY LAE	BELED AND UND	ISTUR	BED?		·.	
AREA I	☐ YES		NO			
AREA II	☐ YES		NO			
AREA III	☐ YES		NO			
AREA IV	☐ YES		NO			ŧ
IF NO, NOTE A	REA AND EXPLA	AIN: _				
				-		
				· · · · · · · · · · · · · · · · · · ·		
	<u>AC</u>	TION I	TEMS			
	-					
9						
					· · · · · · · · · · · · · · · · · · ·	

	RE-INSPECTION NOT	<u>ES</u>	
·			
	 · · · · · · · · · · · · · · · · · · ·		

INSPECTION FORM INSTRUCTIONS AND INSPECTION PROCEDURES

- Complete General Information section. Please note whether this inspection is occurring during
 the pre- cover construction phase, during the cover construction phase, or subsequent to cover
 construction (i.e., during the cover vegetative growth phase but pre- post-closure).
- 2. Complete 19) in Perimeter Fence Inspection section.

Refer to Drawings 1 through 11 in the Closure Plan to complete the following:

3. Inspect each of the four (4) cover areas sucessively. The inspector shall walk the perimeter of each area and across the cover from a selected point on the cover perimeter (inspector's discretion) to a perimeter point on the opposite side of the cover. Carefully inspect areas where the intermittent stream overlaps with the cover system transition. The inspector may

traverse the cover system more than once if deemed necessary. Complete the Cover System Inspection section for each area.

Note: All monitoring wells, benchmarks, run-on and run-off control systems, and perimeter fencing encountered during the cover system inspection may also be inspected.

Complete the appropriate sections of the Inspection Form for these structures.

4. Inspect the culverts and rip rap in the intermittent stream channel within the LTF. Based on observations made pursuant to instructions 3 and 4, complete the Stormwater Management System Inspection section.

Complete the inspection of all monitoring wells, benchmarks, run-on and run-off control systems, and perimeter fencing that was not encountered or inspected during 3 and 4 above. This includes all of the above listed structures not located on the LTF (e.g., monitoring wells located in the adjacent Agricultural Land etc.).

POST-CLOSURE PERIOD INSPECTION FORM LAND TREATMENT FACILITY UNO-VEN Refinery

Lemont, Illinois

GENERAL INFORMATION

GENERAL ENFORMATION
Read the Inspection Form Instructions and Inspections Procedures on Page 9 of This
Form Before Conducting the Inspection
NAME OF INSPECTOR:
COMPANY:
DATE:
TIME: AM or PM
WEATHER:
TEMPERATURE°F
SUNNY □ CLOUDY □ WINDY □ RAINY □ SNOWY □
GROUND CONDITIONS: WET \square DRY \square SNOW \square
IS THIS A SCHEDULED INSPECTION? YES NO
IF NO, EXPLAIN:
MONITORING WELL INSPECTION
MONTONING WEBETISTECTION
ARE THE MONITORING WELLS LOCKED? ☐ YES ☐ NO
IF NO, REFERENCE SPECIFIC WELL(S) AND EXPLAIN:
ARE GUARD POSTS OR PROTECTIVE CASINGS DAMAGED? YES NO
IF YES, REFERENCE SPECIFIC WELL(S) AND EXPLAIN:
ARE THE WELL LOCKS OPERABLE? ☐ YES ☐ NO

	IF NO, REFERENCE SPECIFIC WELL(S) AND EX	PLAIN:	
11)	ARE ID NUMBERS CLEARLY VISIBLE ON WELL IF NO, REFERENCE SPECIFIC WELL(S) AND EXI		
12)	ARE THERE GAPS OR CRACKS IN THE SURFACE NO IF YES, REFERENCE SPECIFIC WELL(S) AND EX		LS?□ YES
		``.	
٠	PERIMETER FENCE INS	PECTION	
13)	ANY SIGNS OF UNAUTHORIZED ENTRY?	☐ YES	□ NO
4)	ARE ANY FENCE POSTS DAMAGED?	☐ YES	□ NO
.5)	DOES FENCE APPEAR IN GOOD CONDITION?	☐ YES	□ NO
6)	ARE ANY SIGNS MISSING?	☐ YES	□ NO
7)	ARE THE SIGNS READABLE?	☐ YES	□ NO
8)	UPON ARRIVAL, WERE THE GATES LOCKED?	☐ YES	□ NO
COMI	MENTS:		
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COVER SYSTEM INSPECTION

	AT SETTLING, SUB	SIDENCE, OR EROSION EVIL	DEIAT :
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AREA II	☐ YES	□ NO	•
AREA III	☐ YES	□ NO	
AREA IV	☐ YES	□ NO	
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AREA II	☐ YES	□ NO	
AREA III	☐ YES	□ NO	
AREA IV	☐ YES	□ NO	
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	AREA II	☐ YES	□ NO	
	AREA III	☐ YES	□ NO	
	AREA IV	☐ YES	□ NO	
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	AREA II	☐ YES	□ NO	
	AREA III	☐ YES	□ NO	
	AREA IV	☐ YES	□ NO	
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24)	ARE THERE PHYSICAL ACT		DISTURBAN	CES FROM VEHICLES OR OTHER
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	AREA II	yes	□ NO	
	AREA III	☐ YES	□ NO	
	AREA IV	☐ YES	□ NO	· ·
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25)	IS THERE ANY	PRECIPITATION	PONDING O	N THE COVER SYSTEM?
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AREA II	☐ YES	□ NO			
AREA III	☐ YES	□ NO			
AREA IV	☐ YES	□ NO			
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CLEARLY LABELED?	☐ YES	□ NO	N.
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	<u>ACTION ITEMS</u>	
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	RE-INSPECTION NOTES	
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INSPECTION FORM INSTRUCTIONS AND INSPECTION PROCEDURES

- 1. Complete General Information section. Please note if this is a scheduled inspection or not.
- 2. Complete 18) in Perimeter Fence Inspection section.

Refer to Drawings 1 through 10 in Post-Closure Plan to complete the following:

3. Inspect each of the four (4) cover areas sucessively. The inspector shall walk the perimeter of each area and across the cover from a selected point on the cover perimeter (inspector's discretion) to a perimeter point on the opposite side of the cover. Carefully inspect areas where the intermittent stream overlaps with the cover system transition. The inspector may traverse the cover system more than once if deemed necessary. Complete the Cover System Inspection section for each area.

Note: All monitoring wells, benchmarks, run-on and run-off control systems, and perimeter fencing encountered during the cover system inspection may also be inspected.

Complete the appropriate sections of the Inspection Form for these structures.

4. Inspect the culverts and rip rap in the intermittent stream channel and all grass waterways (as shown on Drawings). Based on observations made pursuant to instructions 3 and 4, complete the Stormwater Management System Inspection section.

Complete the inspection of all monitoring wells, benchmarks, run-on and run-off control systems, and perimeter fencing that was not encountered or inspected during 3 and 4 above. This includes all of the above listed structures not located on the LTF (e.g., monitoring wells located in the adjacent Agricultural Land etc.).

ATTACHMENT C

REQUIRED SCOPE OF WORK FOR A RCRA FACILITY INVESTIGATION

UNO-VEN COMPANY Chicago Refinery

1978030004

RCRA LOG NO. B-162

Attachment C Scope of Work for a RCRA Facility Investigation

This Scope of Work relates specifically to the RCRA Facility Investigation (RFI) of the solid waste management units identified in Section IV of this Permit.

I. PURPOSE

The purpose of the RFI is to determine the nature and extent of releases of hazardous waste or hazardous constituents, if any, from SWMUs located at Uno-Ven and to gather data necessary to develop and implement a Corrective Measures Program (CMP). Specifically, the information gathered during the RFI will be used to help determine the need, scope and design of a corrective measures program.

II. SCOPE OF WORK

The Scope of Work for the RFI is divided into three phases -- Phases I, II and III.

- 1. The purpose of Phase I is to provide information on the characteristics and integrity of each unit and conduct field activities, as necessary, to determine if various SWMUs at that facility has released, is currently releasing, or has the potential to release hazardous waste and/or hazardous constituents to the soil, and/or surface water. In addition, the Phase I efforts will focus on possible releases to the groundwater from six subareas within the refinery, coordinated as appropriate, with investigation for releases to the groundwater from five (5) UST areas.
- 2. Phase II of the RFI will be required if the Agency's BOL determines from the data obtained in Phase I that, for any SWMU, (1) a release has occurred to the soil groundwater and/or surface water, (2) a release is occurring to the soil, groundwater and/or surface water, or (3) the results are inconclusive. The purpose of Phase II is to define the extent of releases to the soil groundwater and/or surface water.
- 3. Phase III will be required if the Agency's BOL determines from the data obtained in Phase I or Phase II that hazardous wastes or hazardous constituents may have migrated to the groundwater in areas not previously investigated for possible groundwater contamination. The purpose of Phase III is to define the extent of releases both on-site and off-site to the ground water from SWMUs identified in Phase I or II to have potentially released hazardous waste or hazardous constituents to the groundwater.

Each phase of the investigation is divided into three subparts. The first subpart deals with the development of a RFI Workplan by the Permittee. The second subpart is the implementation of the RFI. The final subpart covers the submission of reports of activities and results of the RFI.

III. RFI WORKPLANS

Uno-Ven shall prepare a detailed workplan for each phase of the RFI which is reviewed and approved by the Agency prior to conducting that phase of the RFI. The workplan for each phase of the RFI must, at a minimum, contain the information identified in III.A-III.H below. The information in the workplan must be presented in a manner which is similar to the format set forth in these sections. Information provided in each Phase of the RFI may be incorporated into the workplan for the subsequent Phase by reference. Information already submitted in the Part B permit application may also be incorporated by reference into the workplans when appropriate.

A. INTRODUCTION (required for all workplans)

A general discussion of the contents and goals of each workplan must be provided as an introductory portion of the workplan. This introduction should also discuss, in general, the facility and the SWMUs being investigated.

B. ADMINISTRATIVE OUTLINE

Uno-Ven shall submit as part of the workplan for each phase of the RFI a general outline defining the RFI objectives, technical approach, and scheduling of tasks during that phase of the RFI. Uno-Ven shall prepare a Project Management Plan as part of each Phase Workplan which will include a discussion of the technical approach, schedules, budget, and personnel. The Project Management Plan must also include a description of the qualifications of personnel performing or directing the RFI, including contractor personnel. This plan shall also document the overall management approach to the current Phase of the RFI.

C. <u>INFORMATION REQUIRED SPECIFICALLY IN THE RFI PHASE 1</u> <u>WORKPLAN</u>

The following information must be provided as part of the RFI Phase 1 Workplan.

1. General Facility Information

The following information must be provided (to the extent known) in the Phase I RFI Workplan regarding the facility overall:

- a. A description of the facility, including the nature of its business, both past and present. This description should identify (1) the size and location of the facility, (2) the raw materials used and products manufactured at the facility and (3) the Standard Industrial Code which describes the type of activities carried out at the facility;
- b. Identification of past and present owners;
- c. A discussion of the facility's past and present operations, including solid and hazardous waste generation, storage, treatment and disposal activities;
- d. A brief discussion of each of the SWMUs identified in Section IV;
- e. A description of all significant surface features (ponds, streams, depressions, etc.) and wells within 1,500 feet of the facility;
- f. A description of all land usage within 1,500 feet of the facility, including all known SWMUs;
- g. Identification of all human populations and environmental systems susceptible to contaminant exposure from releases from the SWMUs within a distance of at least 1,500 feet of the facility;
- h. Approximate dates or periods of past spills or releases, identification of material spilled, amount spilled, location, and a description of the response actions, including any inspection reports or technical reports generated as a result of the spill or release.
- i. Approximate dates or periods of past spills or releases, identification of material spilled, location and a description of the response actions, including any inspection reports generated as a result of the spill or release.

- j. A current topographic map(s) showing a distance of at least 1,500 feet around the facility and other information described below, and at a scale of one inch equal to not more than 200 feet. Contours shall be shown on the map, with the contour interval being sufficient to clearly show the pattern of surface water flow. If such a map is not available, the workplan shall describe the method for generating the map for inclusion in the Phase I report. The map shall clearly show the following:
 - 1. Map scale, North arrow, date, and location of facility with respect to Township, Range and Section;
 - 2. Topography and surface drainage depicting all waterways, wetlands, 100-year floodplain, drainage patterns, and surface water areas;
 - 3. Property lines, with the owners of all adjacent property clearly indicated;
 - 4. Surrounding land use;
 - 5. Locations and boundaries of (1) all solid waste, including hazardous waste, management units, both past and present, (2) spill areas and (3) other suspected areas of contamination;
 - 6. All injection and withdrawal wells, and
 - 7. All buildings, tanks, piles, utilities, paved areas, easements, rights-of-way, and other features including all known past and present product and waste underground tanks or piping.

The map(s) shall be of sufficient detail and accuracy to locate and report all current and future RFI work performed at the site. The base map(s) shall be submitted in the Phase I report and modified in subsequent reports and workplans as appropriate.

2. Nature and Extent of Contamination

The Phase I Workplan must contain the following information, to the extent known, for each of SWMUs identified in Section IV:

a. Location of unit/area;

- b. The horizontal and vertical boundaries of each unit/area;
- c. Details regarding the construction, operation and structural integrity of each unit/area;
- d. A description of all materials managed and/or disposed at each SWMU including, but not limited to, solid waste, hazardous wastes, and hazardous constituents to the extent they are known or suspected over the life of the facility including
 - (1) Type of waste or hazardous constituents placed in the units, including source, hazardous classification, quantity and chemical composition;
 - (2) Physical and chemical characteristics, including physical form, physical description, general chemical class, cohesiveness of the waste;
- e. Quantities of solid and hazardous wastes managed by the unit;
- f. The history of the utilization of each SWMU and the surrounding areas, including the period of operation and age of the unit;
- g. Methods used to close the unit, if applicable;
- h. All available data and qualitative information on the level of contamination present at the SWMU;
- i. A description of the existing degree and extent of contamination at each unit area.
- j. Identification of additional information which must be gathered regarding 2.a through 2.i above.

3. <u>Integrity Inspection</u>

The RFI Phase I Workplan must provide for an evaluation of the structural integrity of the concrete-asphalt surface of the active drum staging area (SWMU 20) and the heat exchanger bundle cleaning pads (SWMUs 10 and 25). These surfaces shall be inspected by an independent registered professional engineer for cracks/joints which penetrate through the concrete/asphalt. In addition, all inspections must be carried out in accordance with standards and

recommendations of professional/technical entities such as the American Concrete Institute, the Portland Cement Association, the American Society of Testing and Materials, the American Society of Civil Engineers, etc., which relate to the ability of concrete/asphalt to contain liquids. The results of this inspection shall be (1) submitted in the form of a report, (2) included in the RFI Phase I report required by this order, and (3) certified in accordance with 35 Ill. Adm. Code 702.126 by the engineer. The reports must include (1) the results of the inspection, (2) scaled drawings showing the location of all cracks and construction joints observed during the investigation, (3) conclusions reached regarding any cracks or construction joints observed in the area of concern, (4) justification for the conclusions reached (e.g., information must be provided which indicates that any construction joints in the areas of concern are indeed watertight), and (5) photographs to support the conclusions reached.

If joints, cracks or other defects are found in the base of any SWMU during the inspection required above which would potentially allow hazardous waste or hazardous constituents to migrate through them, then the Phase I Workplan must provide for the collection of soil samples beneath them to determine if hazardous waste or hazardous constituents have been released to the underlying soil.

- a. Samples should be collected from at least one location along <u>each</u> joint or crack that provides a potential for hazardous waste or hazardous constituents to migrate to underlying soil. Such locations shall be biased to stained areas or low-lying areas where spills would tend to accumulate.
- b. Samples should be collected from 0" 6" below the subgrade/natural soil interface.
- c. Samples must be collected and analyzed in accordance with the procedures set forth in the sampling and Analysis Plan below.

4. Soil Sampling/Analysis Plan

The Phase I Workplan must provide for a determination of the presence or absence of releases of hazardous waste and hazardous constituents into the soil around and under each SWMU listed in Condition IV.B.1. where soil is identified as the environmental media of concern. To meet this requirement, the plan must identify:

- a. The procedures which will be used to describe and characterize the soils in and around the subject SWMU(s) down to the water table, including, but not limited to, the following:
 - 1. Unified Soil Classification;
 - 2. Soil profile; and
 - 3. Elevation of water table;
- b. The parameters and hazardous constituents to be used to establish the presence or absence of contamination. These must include, but are not limited to, specific hazardous constituents of wastes known or suspected to have been managed by the SWMU(s) as identified and determined by the unit characterization information presented in the workplan.
- c. The basis for selecting the parameters and constituents in (b) above.
- d. The methodology for choosing sampling locations, depths, and numbers of samples.
- e. Sampling procedures for each parameter or constituent to be analyzed. All soil samples taken must be handled in accordance with 40 CFR 261, Appendix III and the Agency's BOL soil volatile sampling procedure if volatiles are to be analyzed. All other environmental media samples must be collected and handled in accordance with EPA approved and standardized methods for evaluating of solid wastes.

5. Hydrogeologic and Hydrologic Investigation Plan

Phase I hydrogeologic and geologic investigation plan must provide descriptions of groundwater monitoring systems which will provide adequate data on the detection, nature, extent and rate, and concentration of any release to the groundwater at the six subareas identified in Condition IV.B.1.b (the South Plant Refinery, the East Tank Farm, the west Tank Farm, the North Plant [includes Needle Coker and Petrochemical Complex] and the Canal Dock) and the five UST areas identified in Condition IV.B.1.c.

The Information which must be provided regarding the Phase I investigation of hydrogeology and hydrology at each SWMU identified above includes:

- a. Information, as it is available, for each of the six subareas of concern and for the facility overall, regarding
 - (1) The regional geologic and hydrogeologic characteristics in the vicinity of the facility, including stratigraphy, hydrogeologic flow and the areas of recharge and discharge.
 - (2) Any topographic or geomorphic features that might influence the groundwater flow system;
 - (3) The hydrogeologic properties of all of the hydrogeologic units found at the site down to the first bedrock aquitard, including: hydraulic conductivity and porosity, texture, uniformity and lithology; and interpretation of hydraulic interconnections between saturated zones, and zones of significant fracturing or channeling in the unconsolidated and consolidated deposits;
 - (4) Using the facility map as a base, isopach and structural contour maps, and at least two (2) geologic cross sections showing the extent (depth, thickness, lateral extent) of all hydrogeologic units within the facility boundary, down to the first bedrock aquitard, identifying: all units in the unconsolidated and consolidated deposits; zones of higher permeability or lower permeability that might direct or restrict the flow of contaminants; perched aquifers; and the first saturated zone that may have a potential for migration of contaminants;
 - (5) The water level or fluid pressure monitoring, including: water level contour maps and vertical gradient sections, well or piezometer hydrographs and interpretation of the flow system, interpretation of any changes in hydraulic gradients, and seasonal fluctuation; and
 - (6) Any man-made influences that may affect the hydrogeology of the site, identifying local water supply and production wells and other man-made hydraulic structures within 1500 feet of the facility boundary.
- b. Procedures for obtaining information identified in III.B.5.a.1 above which was not obtained during preparation of the workplan.

- discussion must include: (1) scaled maps showing the location of all wells used to collect the monitoring data; (2) construction details of the wells used to collect the monitoring data; (3) a summary of the results of all previous groundwater monitoring efforts; and (4) a detailed evaluation of the collected data. Special issues which must be addressed in this evaluation include: (1) compliance with 35 Ill. Adm. Code 620; (2) adequate determination of the horizontal and vertical extent of groundwater contamination at each of the six subareas and five UST areas identified above; and (3) data gaps which must be addressed to adequately characterize the groundwater contamination.
- d. Documentation that sampling and analysis of groundwater monitoring wells will be carried out in accordance with the approved Data Collection Quality Assurance Plan as required in III.H below. The Plan shall provide information on the design and installation of all groundwater monitoring wells. The designs shall be in accordance with the latest version of the Technical Enforcement Guidance Document (TEGD), where appropriate, and the latest version of the Agency's BOL design criteria. At a minimum:
 - (1) The groundwater monitoring wells must consist of monitoring wells installed in the uppermost aquifer and in each underlying aquifer (e.g., sand units) which are hydraulically interconnected;
 - (2) At least one background monitoring well in each aquifer shall be installed hydraulically upgradient (i.e., in the direction of increasing static head) from the limit of the SWMUs, except to the extent that SWMUs in close proximity can be investigated with the same background well system. The number, locations, and depths must be sufficient to yield groundwater samples that are (a) representative of background quality in the uppermost aquifer and units hydraulically interconnected beneath the facility and (b) not affected by SWMUs at the subject facility; and
 - (3) Monitoring wells in each appropriate aquifer shall be installed hydraulically downgradient (i.e., in the direction of decreasing static head) at the limit of the SWMU or at the limit of each group of proximate SWMUs. There number, locations and depths must ensure that they allow for detection of releases of hazardous waste or hazardous constituents from the SWMU(s).

e. A sampling plan which specifies:

- (1) The parameters and constituents to be used to establish the presence or absence of a plume of contamination. These must include, but need not be limited to, specific hazardous constituents of wastes determined to have been placed in or released from the SWMUs (including any possible degradation products);
- (2) The basis for selecting the parameters and constituents in (1) above;
- (3) The methodology for investigating the hydrostratigraphic units at site, and the locations, depths, and concentration specifications for each monitoring well;
- (4) Sampling procedures for each parameter or constituent to be analyzed, including sampling frequency;
- (5) Analytical methods to be used in the analysis of the samples. If any of these methods is not consistent with those specified in Test Methods for Evaluating Solid Waste, Physical/Chemical Methods (U.S. EPA SW-846), a complete description of the methods to be used and the justification for not using the appropriate SW-846 methods will be provided; and
- (6) Procedures and criteria for evaluating analytical results to establish the presence or absence of any plume of contamination.

6. Surface Water and Sediment Sampling and Analysis Plan

The Phase I Workplan must provide for a determination of the presence or absence of releases of hazardous wastes and hazardous constituents into all surface waters or their sediments potentially affected by the facility. The plan must include, but is not limited to:

a. A description and characterization of all potentially affected surface waters, including locations, areas, depths, inflows and outflows, volumes of water, seasonal fluctuations, flooding tendencies, drainage patters, on-site and offsite affected populations and activities.

- b. Descriptions and characterization of sediments associated with all surface waters, including deposition areas, thickness profiles, and physical and chemical parameters;
- c. The parameters and constituents to be used to establish the presence or absence of a plume of contamination. This must include, but need not be limited to, specific hazardous constituents of wastes known or suspected to have been managed at the facility;
- d. The basis for choosing sampling locations, depths, and number of samples;
- f. The analytical methods to be used in the analysis of the samples. If any of these methods are not identical to those specified in <u>Test Methods for Evaluating Solid Waste</u>, <u>Physical/Chemical Methods</u> (U.S. EPA SW-846), a complete description of the methods to be used and the justification for not using the SW-846 methods must be provided; and
- g. Procedures and criteria for evaluating analytical results to establish the presence or absence of any plume of contamination.

7. <u>Potential Receptors</u>

The Phase I workplan must contain data describing the human populations and environmental systems within a radius of 1,500 feet of the facility boundary that may be affected by releases from SWMUs must be collected and submitted. The following characteristics shall be identified.

- a. Local uses and possible future uses of groundwater:
 - (1) Type of use (e.g., municipal or residential drinking water source, industrial, etc.); and
 - (2) Location of groundwater users, including wells and discharge areas.
- b. Local uses and possible future uses of surface waters draining the facility:
 - 1. Domestic and municipal;
 - 2. Recreational;

- 3. Agricultural;
- 4. Industrial; and
- 5. Environmental.
- c. Human use of, or access to, the facility and adjacent lands, including, but not limited to:
 - 1. Recreation;
 - 2. Agriculture;
 - 3. Residential;

C. INFORMATION REQUIRED SPECIFICALLY IN THE RFI PHASE II WORKPLAN

1. Soil Investigation

A Phase II Soil Sampling and Analysis plan, if necessary, must describe procedures to determine the nature and extent of hazardous waste and/or hazardous constituents released to the soil. This plan shall address and/or include, at a minimum:

- (1) A description of what is known about the horizontal and vertical extent of contamination;
- (2) A description of relevant contaminant and environmental chemical properties within the affected source area and plume, including solubility, specification absorption, leachability, exchange capacity biodegradability, hydrolysis, photolysis, oxidation and other factors that might affect contaminant migration and transformation (if known);
- (3) Specific contaminant concentrations, if known;
- (4) The horizontal and vertical velocity and direction of contaminant movement (if known);

- (5) An extrapolation of future contaminant movement (if known);
- (6) The methods and criteria to be used to define the boundaries of the plume(s) of contamination;
- (7) The parameters and constituents to be used to establish the presence or absence of a plume of contamination. This must include, but need not be limited to, specific hazardous constituents of wastes known or suspected to have been placed in the SWMU's;
- (8) The basis for selecting the parameters and constituents in (7) above;
- (9) The methodology for choosing sampling locations, depths, and numbers of samples;
- (10) Sampling procedures for each parameter or constituent to be analyzed;
- (11) Analytical methods to be used in the analysis of the samples. If any of these methods are not identical to those specified in Test Methods for Evaluating Solid Waste, Physical/Chemical Methods (U.S. EPA SW-846), a complete description of the methods to be used and the justification for not using the SW-846 methods shall be provided; and
- (12) Procedures and criteria for evaluating analytical results to establish the presence or absence of any plume of contamination.

2. <u>Sediment and Surface Water Sampling and Analysis Plan</u>

If the Agency's BOL determines from the data obtained during the Phase I investigation that release of hazardous waste or hazardous constituents have occurred or that the data is inconclusive, the Permittee shall submit a Phase II Workplan to characterize the contamination of the surface waters and sediments. The workplan shall include, at a minimum:

- a. A description of the horizontal and vertical extent of any plumes and the extent of contamination in the underlying sediments (if known);
- b. Specific contaminant concentrations (if known);

- c. The horizontal and vertical direction and velocity of contaminant movement (if known);
- d. An evaluation of the physical, biological and chemical factors influencing contaminant movement (if known);
- e. An extrapolation of future contaminant movement (if known); and
- f. The criteria used to define the boundaries of the plume.
- 3. Groundwater Phase II groundwater investigations may be necessary to supplement information gathered in Phase I relative to the six subareas of the facility being investigated. Phase II should focus on better establishing the quality of groundwater at each subarea of concern and on determining the horizontal and vertical extent of any detected contamination. Phase II efforts should be developed in general accordance with the Phase I procedures for groundwater investigations.

D. <u>INFORMATION REQUIRED SPECIFICALLY IN THE RFI PHASE III</u> WORKPLAN

The potential for release to groundwater must be investigated as part of the Phase III of the RFI if the Agency's BOL determines from the data obtained during the RFI Phase II investigation that releases to soil from a given SWMU identified in Condition IV.B.1.a may have migrated to the groundwater below the site, or the data is inconclusive. The RFI Phase III hydrogeologic and geologic investigation plan must provide descriptions of groundwater monitoring systems which will provide adequate data on the detection, nature, extent and rate, and concentration of any releases to groundwater or surface water.

Phase III hydrogeologic and geologic investigation plan must provide descriptions of groundwater monitoring systems which will provide adequate data on the detection, nature, extent and rate, and concentration of any release to the groundwater at the facility.

The Information which must be provided regarding the Phase I investigation of hydrogeology and hydrology at each SWMU identified above includes:

1. Information, as it is available, regarding:

- (a) The regional geologic and hydrogeologic characteristics in the vicinity of the facility, including stratigraphy, hydrogeologic flow and the areas of recharge and discharge.
- (b) Any topographic or geomorphic features that might influence the groundwater flow system;
- (c) The hydrogeologic properties of all of the hydrogeologic units found at the site down to the first bedrock aquitard, including: hydraulic conductivity and porosity, texture, uniformity and lithology; and interpretation of hydraulic interconnections between saturated zones, and zones of significant fracturing or channeling in the unconsolidated and consolidated deposits;
- (d) Using the facility map as a base, isopach and structural contour maps, and at least two (2) geologic cross sections showing the extent (depth, thickness, lateral extent) of all hydrogeologic units within the facility boundary, down to the first bedrock aquitard, identifying: all units in the unconsolidated and consolidated deposits; zones of higher permeability or lower permeability that might direct or restrict the flow of contaminants; perched aquifers; and the first saturated zone that may have a potential for migration of contaminants;
- (e) The water level or fluid pressure monitoring, including: water level contour maps and vertical gradient sections, well or piezometer hydrographs and interpretation of the flow system, interpretation of any changes in hydraulic gradients, and seasonal fluctuation; and
- (f) Any man-made influences that may affect the hydrogeology of the site, identifying local water supply and production wells and other man-made hydraulic structures within 1500 feet of the facility boundary.
- 2. Procedures for obtaining information identified in III.B.5.a.1 above which was not obtained during preparation of the workplan.
- 3. Documentation that sampling and analysis of groundwater monitoring wells will be carried out in accordance with the approved Data Collection Quality Assurance Plan as required in III.H below. The Plan shall provide information on the design and installation of all groundwater monitoring wells. The designs shall

be in accordance with the latest version of the Technical Enforcement Guidance Document (TEGD), where appropriate, and the latest version of the Agency's BOL design criteria. At a minimum:

- (a) The groundwater monitoring wells must consist of monitoring wells installed in the uppermost aquifer and in each underlying aquifer (e.g., sand units) which are hydraulically interconnected;
- (b) At least one background monitoring well in each aquifer shall be installed hydraulically upgradient (i.e., in the direction of increasing static head) from the limit of the SWMUs, except to the extent that SWMUs in close proximity can be investigated with the same background well system. The number, locations, and depths must be sufficient to yield groundwater samples that are (a) representative of background quality in the uppermost aquifer and units hydraulically interconnected beneath the facility and (b) not affected by SWMUs at the subject facility; and
- (c) Monitoring wells in each appropriate aquifer shall be installed hydraulically downgradient (i.e., in the direction of decreasing static head) at the limit of the SWMU or at the limit of each group of proximate SWMUs. There number, locations and depths must ensure that they allow for detection of releases of hazardous waste or hazardous constituents from the SWMU(s).

4. A sampling plan which specifies:

- (a) The parameters and constituents to be used to establish the presence or absence of a plume of contamination. These must include, but need not be limited to, specific hazardous constituents of wastes determined to have been placed in or released from the SWMUs (including any possible degradation products);
- (b) The basis for selecting the parameters and constituents in (1) above;
- (c) The methodology for investigating the hydrostratigraphic units at site, and the locations, depths, and concentration specifications for each monitoring well;
- (d) Sampling procedures for each parameter or constituent to be analyzed, including sampling frequency;

- (e) Analytical methods to be used in the analysis of the samples. If any of these methods is not consistent with those specified in Test Methods for Evaluating Solid Waste, Physical/Chemical Methods (U.S. EPA SW-846), a complete description of the methods to be used and the justification for not using the appropriate SW-846 methods will be provided; and
- (f) Procedures and criteria for evaluating analytical results to establish the presence or absence of any plume of contamination.

E. SITE-SPECIFIC SAMPLING PLANS

The Permittee shall prepare detailed site-specific sampling plans to be submitted as part of the work for each phase of the RFI which address all field activities needed to obtain site-specific data. The plans must contain: a statement of sampling objectives, specifications of equipment, analyses of interest, sample types, sample locations and schedules for sampling. Wherever appropriate, sample collection, handling, preservation, preparation and analysis described in <u>Test Methods for Evaluating Solid Wastes, Physical/Chemical Methods</u>, Third Edition (SW-846) including Final Update I, shall be utilized. In addition, samples to be analyzed for volatile organic compounds must be collected in accordance with IEPA's "Attachment 7" procedures. The plans must address all levels of the investigations, as well as types of investigations conducted on specific environmental media (i.e., soil, air, surface water, groundwater). The plans must describe in detail how each phase of the RFI will be implemented.

Site-Specific sampling and analysis plan should contain the following informational:

- 1. <u>Goals and Objectives of Effort</u> A discussion of the goals and objectives of the sampling/analysis effort should be included in the plan. This will have an impact on the overall plan, as the sampling/analysis effort required to demonstrate that an area is clean is very different than that required to determine the horizontal and vertical extent of contamination.
- 2. Parameters to be Analyzed A list of proposed parameters along with a discussion justifying their inclusions should be included in the plan. The proposed parameters should include those hazardous constituents which may be present based upon a knowledge of the wastes managed at the unit and the facility overall. This list should include degradation products. Additional parameters for analysis may be required by the Agency, depending on its review of the wastes and other materials managed at the facility.

- 3. <u>Sample Locations</u> A scaled map should be provided in the plan showing the location where the samples are to be collected.
- 4. <u>Sampling Depth</u> As appropriate, the sampling should identify the depth from which each sample is to be collected.
- 5. <u>Sample Collection Procedures</u> The procedures which will be used to collect the samples must be described in the closure plan. The following should be considered in developing these procedures:
 - a. Sampling methods and equipment should follow guidance in <u>USEPA's TEST METHODS FOR EVALUATING SOLID WASTE</u>, PHYSICAL/CHEMICAL <u>METHODS</u> Third Edition, including Final Update 1 (SW-846).
 - b. Field sampling methods not included in SW-846 <u>must</u> be approved by IEPA before the are used in the closure. This includes methods such as drilling, borings, etc. When available, standards procedures, as defined by USEPA, IEPA or ASTM, should be followed.
 - c. Soil and sediment samples collected for volatile organics analysis require specialized sampling and handling procedures, as specified in the Agency's volatile compound sampling procedure. Unless extenuating circumstances dictate otherwise, soil samples collected for volatile organic analysis should not be mixed, composited or otherwise aerated. If extenuating circumstances prevail, then procedures must be made to minimize (1) the time the sample is exposed to the air; (2) aeration of the sample and (3) agitation of the sample. No mixing of compositing of samples should ever take place if they are to be analyzed for VOCs.
 - d. All soil encountered during the sampling effort should be field classified in accordance with ASTM D-2488. Provisions should be made in the plan to make this classification, except for samples collected specifically for VOC analysis.
 - e. If a drill rig or other piece of equipment is necessary to collect soil samples:
 - 1. The procedures specified in ASTM Method D-1586 (Split Spoon Sampling) or D-1587 (Shelby Tube Sampling) must be used in collecting the samples;

- 2. Soil samples should be collected continuously at several locations to provide information regarding the shallow geology of the area where the investigation is being conducted.
- f. Soil and sediments encountered in an area where VOC contamination is a concern should be field-screened for VOCs. However, the actual samples collected for analysis at the laboratory should not be field-screened.
- g. In general, samples should never be composited.
- h. The procedures which will be used to decontaminate the sampling equipment after each sample is collected should also be described. Decontamination procedures should be carried out in accordance with SW-846.
- i. The actual material placed in the container for future analysis should be obtained from any visually contaminated portion of the sample.
- 6. <u>Sample Handling Procedures</u> The sampling plan should describe the procedures which will be used to store, preserve and transport the collected soil samples to the laboratory, including chain-of-custody procedures. These procedures should be carried out in accordance with the guidance in SW-846, Third Edition, including Final Update 1.
- 7. Analytical Procedures The sampling/analysis plan should identify the procedures which will be used to prepare the samples for analysis and to analyze them. In general, such procedures should be carried out in accordance with those set forth in SW-846, Third Edition including Final Update 1. The actual portion of the sample to be analyzed should be obtained from visually contaminated material if any is present. The procedures specified must be sufficient to analyze for all the parameters identified in the closure plan. The estimated quantitation limits and/or practical quantitation limits to be achieved should also be identified. Again, these limits should meet the requirements set forth in SW-846. It must be noted that it is especially important to achieve low detection limits if the goal of the sampling/analysis effort is to demonstrate that little or no contamination exists in a given area. To demonstrate a parameter is not present in a sample, the PQL achieved must be at least as low as that specified in SW-846. Low detection limits may not be as necessary when collecting samples in contaminated areas.
- 8. Any additional items required in the other portions of this section regarding the sampling/analysis of specific environmental media.

F. DATA COLLECTION QUALITY ASSURANCE

The Permittee shall prepare a plan which describes the procedures which will be used to carry out and monitor all sampling and analysis efforts to ensure that all information and data collected are technically sound, statistically valid and properly documented. Such a plan, referred to as a Quality Assurance Project Plan, must be developed using a format in which the fourteen items listed below are discussed in detail:

- 1. Project Description
- 2. Project Organization and Responsibility
- 3. Quality Assurance Objectives for Data Measurements
- 4. Sampling Procedures
- 5. Sample Custody
- 6. Calibration Procedures and Frequency
- 7. Analytical Procedures
- 8. Data Reduction, Validation and Reporting
- 9. Internal Quality Control Audits
- 10. Performance and System Audits
- 11. Preventative Maintenance
- 12. Specific Routine Procedures Used to Assess Data Precision, Accuracy and Completeness
- 13. Corrective Action
- 14. Quality Assurance Reports to Management

Of special concern in the development of a QAPP are (1) the use of trip blanks, field blanks and laboratory blanks and (2) calibration and verification of the laboratory procedures and equipment used to analyze the samples. All procedures used in this

RFI must meet the requirements of <u>Test Methods for Evaluating Solid</u> Wastes, Third Edition (SW-846), including Final Update 1. As such, the quality assurance/quality control procedures carried out during the RFI must meet the requirements set forth in SW-846.

G. DATA MANAGEMENT PLAN

The Permittee shall develop and initiate a Data Management Plan to document and track investigation data and results. This Plan shall identify and set up data documentation materials and procedures, project file requirements, and project-related progress reporting procedures and documents. The Plan shall also provide the format to be used to present the raw data and conclusions of the investigation(s). This plan shall be submitted with each Phase Workplan.

H. HEALTH AND SAFETY PLAN

Under the provisions of 29 CFR 1910 (54 FR 9,295, March 6, 1989), cleanup operations must meet the applicable requirements of OSHA's Hazardous Waste Operations and Emergency Response standard. These requirements include hazard communication, medical surveillance, health and safety programs, air monitoring, decontamination and training. General site workers engaged in activities that expose or potentially expose them to hazardous substances must receive a minimum of 40 hours of safety and health training off site plus a minimum of three days of actual field experience under the direct supervision of a trained experienced supervisor. Managers and supervisors at the cleanup site must have at least an additional eight hours of specialized training on managing hazardous waste operations. These requirements must be met during each phase of the RFI. A detailed Health and Safety Plan demonstrating that his requirement is met must be contained in the workplan for each phase of the RFI.

IV. <u>IMPLEMENTATION OF RFI</u>

The Permittee shall conduct those investigations necessary to characterize the site, and to determine the nature, rate and extent of migration, and concentrations of hazardous waste and hazardous constituents, if any, released from the SWMU's into the surface water and sediments, groundwater, air, and soil. The investigations must be of adequate technical content to support the development and evaluation of a corrective action program, if one is deemed necessary by the Agency's BOL.

The investigation activities shall follow the plans and procedures set forth in the Workplan(s) and the RFI schedule. Any actual or anticipated deviations from the Workplan(s) or the RFI schedule shall be reported no later than the time of submission of the next quarterly report required by Section V subsequent to the determination of need or actual deviation from the Workplan.

V. SUBMISSION OF REPORTS AND RESULTS OF RFI ACTIVITIES

The Permittee must prepare and submit quarterly progress reports and a final report on the activities and results of each Phase of the RFI activities as appropriate. The progress reports shall contain at a minimum:

- 1. An estimate of the percentage of the investigation completed;
- 2. Summary of activities completed during the reporting period;
- 3. Summaries of all actual or proposed changes to the Workplan or its implementation;
- 4. Summaries of all actual or potential problems encountered during the reporting period;
- 5. Proposal for correcting any problems;
- 6. Projected work for the next reporting period; and
- 7. Other information or data as requested in writing by the Agency's BOL.

The workplans and reports which must be submitted to the Agency for review and approval in accordance with the schedule set forth in the following table:

Facility Action

Due Date

Submission of RFI Phase I Workplan

Within 90 days after effective date of the order

Completion of RFI Phase I investigation and submission of Phase I Report and Summary

To be specified in the Phase I Workplan

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Facility Action

Submission of RFI Phase II Workplan

Completion of RFI Phase II investigation and submission of Phase II Report and Summary

Submission of RFI Phase III Workplan

Completion of RFI Phase III investigation and submission of Phase III Report and Summary

Periodic Progress Reports

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Due Date

Within 60 days after notification of the need of Phase II by Agency's BOL

To be specified in the Phase II workplan

Within 60 days after notification of the need for Phase III

To be specified in the Phase III Workplan

To be specified in workplans

ATTACHMENT D

CORRECTIVE MEASURES PROGRAM REQUIREMENTS

UNO-VEN COMPANY Chicago Refinery

1978030004

RCRA LOG NO. B-162

Attachment D Corrective Measures Program Requirements

1.0 Introduction

In accordance with Section 3004 of RCRA and 35 IAC 724.201, Uno-Ven must institute such corrective action necessary to protect human health and the environment from all releases of hazardous wastes, or hazardous constituents, listed in Appendix H of 35 Ill. Adm. Code Part 721, from any Solid Waste Management Unit (SWMU) at its facility. This is accomplished by:

- 1. Conducting a RCRA Facility Investigation (RFI) to determine whether releases of hazardous wastes and hazardous constituents have occurred from any Solid Waste Management Unit (SWMU) at the subject facility, and, if so, the nature and extent of the release; and
- 2. Based on the results of the RFI, developing and implementing a Corrective Measures Program which describes the necessary corrective actions which will be taken. The required corrective actions shall be those actions necessary to protect human health and the environment from all releases of hazardous wastes, or hazardous constituents, listed in Appendix H of 35 Ill. Adm. Code Part 721, from any SWMUs determined to pose an environmental threat by the RFI required under the terms and conditions of the final RCRA permit.

The purpose of this document is to describe the steps in developing and implementing the Corrective Measures Program (CMP). To allow for a logical and orderly progression in developing and implementing necessary corrective action at SWMUs, the Corrective Measures Program should be carried out in five phases.

- 1. Phase I should consist of (1) development of final cleanup objectives, (2) identification of those SWMUs requiring corrective action and (3) a preliminary evaluation of the corrective action alternatives available for each SWMU requiring corrective action.
- 2. Phase II should consist of development of a conceptual design of the corrective action chosen for each SWMU remedial system(s) and/or institutional controls.
- 3. Phase III should consist of development and submission of the final design plans for the corrective action, including operation/maintenance plans and plans for the actual installation of the desired correction action.
- 4. Phase IV is the actual construction/installation of the selected corrective measure.

5. Phase V CMP is operation, maintenance, and monitoring of the selected corrective action to ensure it is properly protecting human health and the environment.

Workplans, reports, etc. will have to be developed as part of the efforts associated with each phase. All such documents will be subject to Agency review and approval. Details associated with each phase and the development of workplans, reports, etc. required for each phase is provided below.

2.0 Phase I of the CMP

In the initial phase of the Corrective Measures Program, the Permittee should (1) develop cleanup objectives for the SWMUs being investigated, and then (2) identify those SWMUs requiring corrective action. If it should be determined that a specific SWMU, or group of SWMUs, require corrective action, then the Permittee should identify, in general, types of remedial technologies or institutional controls which may be instituted to address and/or stabilize residual contamination, and identify the goals of the corrective measures. All of these efforts should be documented in the form of a Determination of Corrective Measures Report which include the following:

- 1. <u>Proposed Final Soil Clean-up Objectives</u>. Final soil cleanup objectives will determine the need for and extent of soil remediation (soil corrective measures) at each SWMU investigated.
 - a. The procedures utilized to develop the final soil cleanup objectives must take into consideration:
 - i. The volume and physical and chemical characteristics of the contaminants of concern;
 - ii. The effectiveness and reliability of containment, confinement and collection systems and structures in preventing contaminant migration;
 - iii. The hydrologic characteristics of the unit and the surrounding area, including the topography of the land around the unit;
 - iv. The patterns of precipitation in the region;
 - v. The existing quality of surface soils, including other sources and their cumulative impacts on surface soils;

- vi. The potential for contaminant migration and impact to the underlying groundwater;
- vii. The land use patterns in the region;
- viii. The potential for health risks caused by human exposure to the waste constituents; and
- ix. The potential for damage to domestic animals, wildlife, food chains, crops, vegetation, and physical structures caused by exposure to waste constituents.
- b. The Permittee and the Agency should have a meeting prior to the time that the Permittee begins developing these objectives. The goal of this meeting will be to provide the Permittee with guidance regarding the procedure which should be followed in developing and proposing these final target levels.
- c. The Agency will establish final target levels if none are proposed by the Permittee.
- d. The USEPA draft guidance document entitled <u>Soil Screening Guidance</u> and the IEPA document entitled <u>Tiered Approach to Cleanup Objectives</u> may be used in the development of these values as they relate to the protection of human health.
- e. Final Agency action taken on the development of and establishment of these final target levels will be subject to the appeal provisions of Section 39(a) of the Illinois Environmental Protection Act.
- f. For certain SWMUs, it may not be appropriate to establish final target soil levels. This will be the case for those SWMUs where the selected corrective action is capping of the area followed by long-term monitoring.
- 2. <u>Final Corrective Measures Groundwater Target Levels.</u> Final corrective measures groundwater target levels will determine the need for and extent of groundwater remediation (groundwater corrective measures). The procedures used in the development of these levels must be in general accordance with the procedures described above for final soil target levels and must also meet the requirements set forth in 35 IAC 620.
 - a. The Permittee and the Agency should have a meeting prior to the time that the Permittee begins developing these target levels. The goal of this meeting will be to provide the Permittee with guidance regarding the procedure which should be followed in developing and proposing these final groundwater target levels;

- b. The Agency will establish final target levels if none are proposed by the Permittee.
- c. Final Agency action taken on the development of an establishment of these final objectives will be subject to the appeal provisions of Section 39(a) of the Illinois Environmental Protection Act.
- 3. <u>Ecological Assessment</u> An ecological assessment must be carried out as part of the development of cleanup objectives to determine if there will be any adverse impact on the ecology resulting from the proposed cleanup objectives. Ecological assessments must also be carried out if institutional controls (such as capping, etc.) are the selected corrective measures. This assessment should be developed in accordance with USEPA guidance and address the following issues:
 - a. Physical, chemical and ecological characterization of site area;
 - b. Formulation of potential ecological problem
 - i. Determination of contaminants of concern
 - ii. Identification of potential ecological receptors
 - c. Analysis of potential ecological problems
 - i. Characterization of exposure
 - ii. Assessment of exposure
 - iii. Characterization of ecological effects
 - iv. Characterization of ecotoxicological effects
 - v. Assessment of ecological effects
 - vi. Assessment of ecotoxicological effects
 - d. Characterization of risk
 - i. Estimation of risk
 - ii. Uncertainty analysis

- iii. Interpretation of ecological significance
- e. Risk management
- 4. <u>Evaluation of Need for Corrective Action</u> The need for corrective action at each SWMU should be evaluated, based upon a comparison of the proposed clean-up objectives to the results of the RFI.
- 5. Potential Corrective Measures The report should contain a general discussion of the possible corrective measures which may be taken at SWMUs where it is determined that some type of corrective measure is necessary. More detailed information of such measures should be provided if the selected corrective measure has an impact on the development of the clean-up objectives. Also, there must be a discussion of whether the various measures will actually remove the contamination from the environmental media of concern or whether it is some type of institutional control to minimize the potential for future releases from the SWMU. Typically, some type of long term monitoring is required for corrective measures which employ institutional control.

3.0 Phase II of the CMP

Phase II of the CMP includes selection of the corrective measure to be taken and developing a basis for completing the final design of the measure. This effort should be documented in a Conceptual Design Report which describes the proposed corrective measure for each SWMU and provides a conceptual design for these measures. The main criteria for Agency review is whether the proposed corrective measures are able to achieve the final cleanup objectives established by the Permittee and the Agency in Phase I of the CMP and/or provide the institutional controls to prevent the migration of contaminants from the SWMU of concern necessary. Based upon a review of the Conceptual Design Report, the Agency may approve the corrective measures, require revisions to the proposed corrective measures, or require that a totally new corrective measures proposal be submitted to the Agency.

The Conceptual Design Report should contain the following sections:

- 1. <u>Introduction/Purpose</u>. The report should include an introductory section which contains: (1) general background information regarding the project; (2) the purpose and goals of the submittal; and (3) the scope of the project.
- 2. <u>Existing Site Conditions</u>. The report should contain a summary of the RFI activities conducted for each of the SWMUs of concern and the results of Phase I of the CMP for

each SWMU. RFI investigation analytical results should be provided in tabular form, and maps depicting both the horizontal and vertical extent of contamination at the site should be provided.

- 3. Evaluation for Potential Future Migration. Based on the existing site conditions, a conceptual model of the site should be developed and presented in this report. The potential for additional future migration of contamination for each of the SWMUs of concern must then be evaluated, especially those SWMUs which have been determined to have released hazardous waste/hazardous constituents to the groundwater. It may be helpful to develop conceptual models for contaminant migration. Of special concern in this evaluation are (1) the physical properties of the Corrective Measures Plan Guidance contaminants (solubility, volatility, mobility, etc.) and (2) existing site conditions (types of soil present, location of contamination, hydrology, geology, etc.).
- 4. <u>Corrective Measures Objectives</u>. The report should discuss the general objectives of the proposed corrective measures to be constructed/installed for each SWMU at the subject facility, and the ability of the proposed corrective measures to achieve the established Corrective Measures Target Levels.
- 5. <u>Identification of Options Available</u>. The report should contain a discussion of the various options available to achieve the corrective measures objectives for each SWMU. This discussion should identify: (1) a general overview of each option available, including how the option will achieve the stated objective; (2) the advantages associated with each option; (3) the disadvantages associated with each option and (4) an estimate of the cost associated with choosing each option as a remediate.
- 6. <u>Description of Selected Corrective Measure</u>. The report should contain a qualitative discussion of the corrective measure chosen, along with the rationale which was used to select this measure from all those identified initially. This discussion should include documentation that the selected correction measure will be effective.
- 7. <u>Identification of Design Criteria</u>. The report should identify what information must be available to design the selected corrective measure.
- 8. Review of Available Information. The report should contain an evaluation of the existing information to ensure that sufficient information is available to complete the design of the selected corrective measure. If insufficient information is available, then the report should contain procedures for collecting the required information. The level of detail required for this additional data collection should be similar to that provided in RFI workplans.

- 9. <u>Procedures for Completing the Design</u>. The report should contain a description of the procedures which will be followed to complete the design of the corrective measure. This should include as appropriate:
 - a. Identification of the references and established guidance which will be used in designing the selected corrective measure. Justification for the selection of this procedure should also be provided.
 - b. A description of the procedures which will be used to complete the design of the corrective measure.
 - c. Identification of assumptions to be used in the design, and the impact these assumptions have on the overall corrective measure;
 - d. Significant data to be used in the design effort;
 - e. Identification and discussion of the major equations to be used in the design effort (including a reference to the source of the equations);
 - f. Sample calculations to be used in the design effort;
 - g. Conceptual process/schematic diagrams;
 - h. A site plan showing a preliminary layout of the selected corrective measure;
 - i. A site plan showing a preliminary layout of the selected corrective measure;
 - j. Tables giving preliminary mass balances;
 - k. Site safety and security provisions.

The information presented herein will form the continuing technical basis for the detailed design of the system and the preparation of construction plans and specifications.

- 10. <u>Identification of Required Permits</u>. The report should identify and describe any necessary permits associated with the selected corrective measure, as well as the procedures which will be used to obtain these permits.
- 11. <u>Long-lead Procurement Considerations</u>. The report should identify any elements/components of the selected corrective measure which will require a large

- amount of time to obtain/install. The following issues should also be discussed: (1) the reason why it will take a large amount of time to obtain/install the item; (2) the length of time necessary for procurement and (3) recognized sources of such items.
- 12. <u>Project Management</u>. The report should contain information regarding the procedures and personnel which will be involved in completing the design of the selected corrective measure. A schedule for completing the design should also be provided.

4.0 Phase III of the CMP

Once the Agency approves the Conceptual Design Report, the facility should complete the design of the approved corrective action (Phase II of the CMP). Upon final completion of the design, the Final Design Report, consisting of final plans, specifications, construction workplan, etc. must be submitted to the Agency for review and approval. Typically, the Agency requires that these documents be submitted to the Agency within 120 days after the Conceptual Design Report Corrective Measures Plan Guidance has been approved. The final design report of the CMP must be submitted to the Agency in the form of a Class II permit modification in accordance with 35 Ill. Adm. Code Part 703. Should implementation of the corrective measures include construction/installation of additional structures which would meet the definition of RCRA regulated units, the Agency may notify the Permittee that the submittal will be reviewed as a Class III permit modification in accordance with 35 Ill. Adm. Code Part 703. In any event, as the submittal is either a Class II or Class III modification to the facility permit, the Agency response will be handled in accordance with the procedures for Class II and Class III modifications as outlined in 35 Ill. Adm. Code Parts 703 and 705. Several documents must be submitted to the Agency as part of Phase III of the CMP. The following text describes the expected contents of the various documents which should be developed and submitted to the Agency as part of Phase III of the CMP.

- 1. <u>Final Design Report and Construction Workplan</u>. The Final Design Report and Construction Workplan must contain the detailed plans, specifications and drawings needed to construct the corrective measure. In addition, this document must contain (1) calculations, data etc. in support of the final design; and (2) a detailed description of the overall management strategy, construction quality assurance procedures and schedule for constructing the corrective measure. It must be noted that the approved Conceptual Design Report forms the basis for this final report. The information which should be provided in this document includes:
 - a. <u>Introduction/Purpose</u>. This portion of the document should (1) provide background information regarding the project, (2) describe the purpose and goals of the project, and (3) describe the scope of the project.

- b. <u>Detailed Plans of the Design System</u>, including the following:
 - 1. Plan views;
 - 2. Section and supplementary views which, together with the specifications and general layouts, facilitate construction of the designed system;
 - 3. Dimensions and relative elevations of structures;
 - 4. Location and outline form of the equipment;
 - 5. Ground elevations; and
 - 6. Descriptive notations, as necessary, for clarity.
- c. <u>Technical Specifications</u>. Complete technical specifications for the construction of the system. The specifications accompanying construction drawings should include, but are not limited to, the following:
 - 1. All construction information, not shown in the drawings, which is necessary to inform the contractor in detail as to the required quality of materials, workmanship, and fabrication of the project;
 - 2. The type, size, strength, operating characteristics and rating of the equipment;
 - 3. The complete requirements for all mechanical and electrical equipment, including machinery, valves, piping and jointing of pipe;
 - 4. Electrical apparatus, wiring and meters;
 - 5. Construction materials;
 - 6. Chemicals, when used;
 - 7. Miscellaneous appurtenances;
 - 8. Instruction for testing materials and equipment as necessary; and
 - 9. Availability of soil boring information.

- d. <u>Project Management</u>. A description of the construction management approach, including the levels of authority and responsibility, lines of communication and qualifications if key personnel who will direct corrective measures construction/installation must be provided in the workplan.
- e. <u>Construction Quality Assurance/Quality Control.</u> the workplan must contain a construction quality assurance/quality control plan describing the procedures which will be followed t ensure the corrective measure is constructed/installed in accordance with the approved plans and specifications.
- f. <u>Schedule</u>. The workplan must contain a schedule for completion of all major activities associated with construction/installation of the selected corrective measures. All major points of the construction/installation should be highlighted, with a graphical representation of the project schedule included.
- g. <u>Waste Management Practices</u>. This portion of the document should identify the wastes anticipated to be generated during the construction/installation of the corrective measures, and provide a description of the procedures for appropriate characterization and management of these wastes.
- h. Required Permits. This portion of the report should contain copies of permit applications submitted to other Bureaus of the Agency for the selected corrective measure. If it is determined that no permit is required for construction/installation and implementation of the corrective measures, rationale and justification must be provided to support this contention.
- 2. <u>Operation and Maintenance Plan</u>. An Operation and Maintenance Plan must be developed and submitted as part of Phase III of the CMP. This plan should outline the procedures for performing operations, long term maintenance, and monitoring of the corrective measure.
 - a. <u>Introduction and Purpose</u>. This portion of the document should provide a brief description of the facility operations, scope of the corrective measures project, and summary of the project objectives.
 - b. <u>System Description</u>. This portion of the document should provide a description of the corrective measure and significant equipment, including manufacturer's specifications. This portion of the permit should also include a narrative of how the selected system equipment is capable of complying with the final engineered design of the corrective measure.

- c. <u>Operation and Maintenance Procedures</u>. This portion of the document should provide a description of the normal operation and maintenance procedures for the corrective measures system, including:
 - 1. Description of tasks for operation;
 - 2. Description of tasks for maintenance;
 - 3. Description of prescribed treatment or operation conditions; and
 - 4. Schedule showing the frequency of each operation and maintenance task.
- d. <u>Inspection Schedule</u>. This portion of the document should provide a description of the procedures for inspection of the corrective measures system, including problems to look for during the inspection procedure, specific inspection items, and frequency of the inspections.
- e. <u>Waste Management Practices</u>. This portion of the document should provide a description of the wastes generated by operation of the corrective measures, and the appropriate procedures for proper characterization and management of these wastes.
- f. <u>Contingency Procedures</u>. This portion of the document should provide a description of the procedures which will address the following items;
 - 1. System breakdowns and operational problems including a list of redundant and emergency backup equipment and procedures;
 - 2. Alternative procedures (i.e., stabilization) which are to be implemented in the event that the corrective measure suffer complete failure. The alternative procedures must be able to prevent release or threatened releases of hazardous wastes/hazardous constituents which may endanger human health and the environment, or exceed cleanup standards.
 - 3. Notification of facility and regulatory personnel in the event of a breakdown in the corrective measures, including written notification identifying what occurred, what response action is being taken and any potential impacts on human health and the environment.

5.0 Phase IV the CMP

Once the reports required by Phase III above are approved by the Agency, construction/installation of the approved corrective measure must commence. During this period, quarterly reports should be submitted which contain the following information:

- 1. Summary of activities completed during the reporting period;
- 2. An estimate of the percentage of the work completed;
- 3. Summaries of all actual or proposed changes to the approved plans and specifications or its implementation;
- 4. Summaries of all actual or potential problems encountered during the reporting period;
- 5. Proposal for correcting any problems;
- 6. Projected work for the next reporting period; and

Upon completion of construction/installation of the approved corrective measure, a Construction Report must be submitted to the Agency documenting that these efforts were carried out in accordance with the Agency approved plans and specifications. This report should contain a thorough description of the efforts that went into constructing/installing the corrective measure and demonstrate that the procedures in the Agency-approved Final Design Report were followed during this effort. Such a report should be formatted in a logical and orderly manner and contain the following information:

- 1. An introduction discussing the background of the project and the purpose and scope of the corrective measure described in the report.
- 2. Identification of the plans, technical specifications and drawings which were used in constructing/installing the corrective measure. These specifications and drawings should have been approved by the Agency during Phase III;
- 3. Identification of any variations from the Agency approved plans, technical specifications and drawings used in construction/installing the corrective measure. Justification regarding the need to vary from the approved plans and specifications must also be provided;
- 4. A description of the procedures used to construct/install the corrective measure, including the procedures used for quality assurance and quality control;

- 5. As-built drawings, including identification of any variations from the approved plans, technical specifications and drawings;
- 6. A summary of all test results from the construction/installation effort, including quality assurance/quality control testing.
- 7. Actual test results, including quality assurance/quality control test results. These results should be located in an attachment/appendix and be well organized.
- 8. Identification of any test results which did not meet the specified value and a description of the action taken in response to this failure, including re-testing efforts.
- 9. Photographs documenting the various phases of construction.
- 10. A detailed discussion of how the construction/installation effort met the requirements of the approved Final Design Report.
- 11. A certification by an independent qualified, registered professional engineer and by an authorized representative of the owner/operator (the authorized representative must meet the requirements of 35 IAC 702.126). The wording for this certification must also meet the requirements of 35 IAC 702.126.

6.0 Phase V of the CMP

Once the corrective measure has been constructed/installed, it must be operated, maintained and monitored in accordance with the approved plans and specifications (this is Phase V of the CMP). During this period, quarterly reports must be submitted to the Agency documenting the results of these efforts. These reports should contain the following information:

- 1. <u>Introduction</u>. This portion of the document should provide a brief description of the facility operations, scope of the corrective measures project, and summary of the project objectives.
- 2. <u>System Description</u>. This portion of the document should provide a description of the corrective measures constructed/installed at the site, and identify significant equipment. Describe the corrective measure and identify significant equipment.
- 3. <u>Monitoring Results</u>. This portion of the permit should provide a description of the monitoring and inspection procedures to be performed on the corrective measures. A

summary of the monitoring results for the corrective measures, including copies of any laboratory analyses which document system effectiveness, provide a description of the monitoring procedures and inspections performed, and include a summary of the monitoring results for the corrective measure. Copies of all laboratory analytical results which document system monitoring must be provided.

- 4. <u>Effectiveness Determination</u>. This portion of the document should provide calculations and other relevant documentation which demonstrates the effectiveness of the selected corrective measure in remediating/stabilizing contamination to the extent anticipated by the corrective measures final design. Copies of relevant analytical data should be provided to substantiate this determination.
- 5. <u>System Effectiveness Recommendation</u>. Based upon the results of the effectiveness determination required under d. above, this portion of the document should provide a recommendation on continuance of the corrective measure. If the corrective measure is not performing in accordance with the final design, a recommendation on revisions or expansion of the system should be provided. Additionally, based upon the monitoring results, a schedule for achieving the cleanup standards would be included with each determination.

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ATTACHMENT E

CONSTRUCTION CERTIFICATION FORM AND INSTRUCTIONS

UNO-VEN COMPANY Chicago Refinery

1978030004

CERTIFICATION

This statement is to be completed by both the responsible officer and the registered professional engineer upon completion of construction in accordance with 35 IAC Section 702.126. Submit one copy of the certification with original signatures and two additional copies (four additional copies for UIC wells). Forward these certification statements and any information required by the permit to the following address:

Illinois Environmental Protection Agency Bureau of Land - #33 Permit Section 2200 Churchill Road, P.O. Box 19276 Springfield, Illinois 62794-9276

FACILITY NAME:	
IEPA SITE CODE:	· · · · · · · · · · · · · · · · · · ·
U.S. EPA ID NO.: IL	· · · · · · · · · · · · · · · · · · ·
PART B PERMIT LOG #/UIC PERMIT #:	·
PERMIT (OR MODIFICATION) ISSUANCE DA	TE:
PERMIT CONDITION NO. REQUIRING CERTI	FICATION:
were prepared under my direction or supervision in qualified personnel properly gather and evaluate the person or persons who manage the system, or those information, the information submitted is, to the be	e information submitted. Based on my inquiry of the e persons directly responsible for gathering the st of my knowledge and belief, true, accurate, and alties for submitting false information, including the
Signature of Owner/Operator	Name and Title
Signature of Registered P.E.	Name of Registered P.E. and Illinois Registration Number
Date	(P.E. SEAL)

This Agency is authorized to require this information under Illinois Revised Statutes, 1979. Chapter 111 ½, Section 1039. Disclosure of this information is required under that Section. Failure to do so may prevent this form from being processed and could result in your application being denied. This form has been approved by the Forms Management Center.

Mary A. Gade, Director

2200 Churchill Road, Springfield, IL 62794-9276

DATE:

February 23, 1996

TO:

Facilities Permitted Under the IEPA RCRA and UIC Programs

FROM:

DLPC Permit Section

SUBJECT:

Certification Documentation for Construction Required by IEPA-Issued Permits

When submitting certification required by a Part B or UIC permit for construction of any newly developed areas or units, please complete the attached certification form. Modifications to the construction of UIC wells should be certified with this form, but the installation of groundwater monitoring wells does not require this certification (unless specifically required by the permit). This will help to ensure that the submittal reaches its proper destination and that the certification will meet the regulatory requirements. Sending the Field Operations Section (F.O.S.) copy directly to the Field Office is acceptable as long as all copies have a completed copy of the enclosed form attached and you advise the Permit Section, in writing, that a copy has been sent to F.O.S.

A documentation report and as-built drawings (sealed and signed by an Illinois Professional Engineer) must be included with this certification. Information necessary to document the construction of the unit or area and to support the certification must be contained within the report. This report should include a thorough description of all construction data and drawings and should be formatted in a logical and orderly manner. The construction documentation report must contain at least the following items:

- 1. An introduction and summary which describes the scope and purpose of the project;
- 2. A description of all construction activities, including quality assurance and quality control;
- 3. As-built drawings of the area or unit and a description of any deviations from the plans and specifications approved in the permit;
- 4. A description of the test methods used and justification for any deviations from standard test methods;
- 5. A summary of test results, identification of any samples which did not meet the specifications and the corrective action and retesting which was undertaken in response to any failing test results;
- 6. Any necessary information associated with construction of the area or unit to document that construction was in accordance with the plans and specifications approved by the permit;
- 7. Information specifically required by the permit; and
- 8. Any available photographs of the area or unit.

If you have any questions, please contact a member of the DLPC Permit Section at 217/782-6762.

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ATTACHMENT F CLOSURE CERTIFICATION FORM

UNO-VEN COMPANY Chicago Refinery

1978030004

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1978030004 UNO-VEN Company RCRA Log No. B-162

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This statement is to be completed by both the responsible officer and by the registered professional engineer upon completion of closure. Submit one copy of the certification with original signatures and three additional copies.

Closure Certification Statement

The hazardous waste management units at the facility described in this document have been closed in accordance with the specifications in the Agency approved closure plan. I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

USEPA ID Number	Facility Name
Signature of Owner/Operator	Name and Title
Signature of Registered P.E.	Name of Registered P.E. and Illinois Registration Number
Date	

ATTACHMENT G

IDENTIFICATION OF THE APPROVED PERMIT APPLICATION

UNO-VEN COMPANY Chicago Refinery

1978030004

ATTACHMENT G IDENTIFICATION OF THE APPROVED PERMIT APPLICATION

<u>Title</u>	Latest Revision Date
SECTION A RCRA PART A APPLICATION [EPA FORM 8700-23 (01-90)]	2-27-96 (Rev. 2)
SECTION B FACILITY DESCRIPTION	
B-1 General Description	2-29-96 (Rev. 2)
B-2 Topographic Map	2-29-96 (Rev. 2)
B-3 Location Requirements	5-12-95
B-4 Traffic Information	5-12-95
B-5 Operating Record	5-12-95
SECTION C - WASTE CHARACTERISTICS	
C-1 Chemical and Physical Analysis	2-29-96 (Rev. 2)
C-2 Waste Analysis Plan	2-29-96 (Rev. 2)
C-3 Quality Assurance	2-29-96 (Rev. 2)
SECTION D PROCESS INFORMATION	
D-1 Containers	N.A.
D-2 Tank Systems	N.A.
D-3 Waste Piles	N.A.

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<u>Title</u>		Latest Revision Date	
D-4	Surface In	5-12-95	
D-5	Incinerato	rs	N.A.
D-6	Landfills		N.A.
D-7	Land Trea	atment	5-12-95
	D-7a	Treatment Demonstration	N.A.
	D-7b	Land Treatment Program	8-30-96 (Rev. 4)
	D-7c	Unsaturated Zone Monitoring Plan	8-30-96 (Rev. 4)
	D-7d	Treatment Zone Description	8-30-96 (Rev. 4)
	D-7e	Unit Design, Construction, Operation, Maint	8-30-96 (Rev. 4)
	D-7f	Food Chain Crops	N.A.
,	D-7g	Waste Management Plan for Dioxin Wastes	N.A.
· ·	D-7h	Incompatible Wastes	N.A.
SECTION E GROUNDWATER MONITORING			
E-1	Exemptio	n from Groundwater Protection Requirements	5-12-95
E-2	2 Interim Status Groundwater Monitoring Data		5-12-95
E-3	-3 General Hydrogeological Information		5-12-95
E-4	4 Topographic Map Requirements		5-12-95
E-5	Contamir	ant Plume Description	N.A.
E-6	Groundw	ater Monitoring System	5-12-95

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	Title	<u>e</u>	Latest Revision Date
E-7	Detection	Monitoring Program	5-12-95
E-8	Complian	N.A.	
E-9	Corrective	e Action Program	N.A.
E-10	Correctiv	e Action for SWMUs	5-12-95
SEC	TION F -	- PROCEDURES TO PREVENT HAZARDS	
F-1	Security		
	F-1a	Security Procedures and Equipment	8-30-96 (Rev. 4)
	F-1a(1)	24-hour Surveillance System	8-30-96 (Rev. 4)
	F-1a(2)	Barrier and Means to Control Entry	8-30-96 (Rev. 4)
	F-1a(2)(a)) Barrier	8-30-96 (Rev. 4)
į	F-1a(2)(b) Means to Control Entry	8-30-96 (Rev. 4)
	F-1a(3)	Warning Signs	8-30-96 (Rev. 4)
	F-1b	Waiver	8-30-96 (Rev. 4)
F-2	Inspection	n Schedule	8-30-96 (Rev. 4)
	F-2a	General Inspection Requirements	8-30-96 (Rev. 4)
	F-2b	Specific Process Inspection Requirements	8-30-96 (Rev. 4)
	F-2b(1)	Container Inspection	N.A.
	F-2b(2)	Tank System Inspections	N.A
	F-2b(3)	Waste Pile Liner Inspection	N.A.

<u>Title</u>		Latest Revision Date	
	F-2b(4)	Waste Pile Inspection	N.A.
	F-2b(5)	Surface Impoundment Inspection	N.A.
	F-2b(6)	Incinerator Inspection	N.A.
	F-2b(7)	Landfill Inspection	N.A.
	F-2b(8)	Land Treatment Facility Inspection	8-30-96 (Rev. 4)
F-3		r Documentation of Preparedness ention Requirements	
	F-3a	Equipment Requirements	
	F-3a(1)	Internal Communications	8-30-96 (Rev. 4)
	F-3a(2)	External Communications	8-30-96 (Rev. 4)
	F-3a(3)	Emergency Equipment	8-30-96 (Rev. 4)
ļ	· F-3a(4)	Water for Fire Control	8-30-96 (Rev. 4)
	F-3b	Aisle Space Requirements	8-30-96 (Rev. 4)
F-4	Preventiv	ve Procedures, Structures and Equipment	
	F-4a	Unloading Operations	8-30-96 (Rev. 4)
	F-4b	Run-Off	8-30-96 (Rev. 4)
	F-4c	Water Supplies	8-30-96 (Rev. 4)
	F-4d	Equipment and Power Failure	8-30-96 (Rev. 4)
	F-4e	Personnel Protection Equipment	8-30-96 (Rev. 4)
F-5		on of Reaction of Ignitable, Reactive patible Wastes	8-30-96 (Rev. 4)

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<u>Title</u>		Latest Revision Date	
SEC	CTION G	CONTINGENCY PLAN	· ·
G-1	General l	Information	8-30-96 (Rev. 4)
G-2	Emergen	cy Coordinators	8-30-96 (Rev. 4)
G-3	Impleme	ntation	8-30-96 (Rev. 4)
G-4	Emergen	cy Response Procedures	
	G-4a	Notification to Federal, State, and Local Officials	8-30-96 (Rev. 4)
	G-4b	Identification of Hazardous Materials	8-30-96 (Rev. 4)
	G-4c	Assessment	8-30-96 (Rev. 4)
	G-4d	Control Procedures	8-30-96 (Rev. 4)
	G-4e	Prevention of Recurrence or Spread of Fires, Explosions or Releases	8-30-96 (Rev. 4)
	G-4f	Storage and Treatment of Released Material	8-30-96 (Rev. 4)
	G-4g	Incompatible Waste	N.A.
	G-4h	Post Emergency Equipment Maintenance	8-30-96 (Rev. 4)
	G-4i	Container Spills and Leaks	N.A.
	G-4j	Tank System Spills and Leaks	N.A.
	G-4k	Waste Pile Spills and Leakage	N.A.
	G-41	Surface Impoundment Spills and-Leakage	N.A.
	G-4m	Incinerator Spills and Leakage	N.A.
	G-4n	Landfill Leakage	N.A.

<u>Title</u>	Latest Revision Date	
G-5 Emergency Equipment	8-30-96 (Rev. 4)	
G-6 Coordination Agreement Requirements	8-30-96 (Rev. 4)	
G-7 Evacuation Plan	8-30-96 (Rev. 4)	
G-8 Required Reports	8-30-96 (Rev. 4)	
SECTION H PERSONNEL TRAINING		
H-1 Outline of the Training Program	8-30-96 (Rev. 4)	
H-2 Implementation of Training Program	8-30-96 (Rev. 4)	
SECTION I CLOSURE AND POST-CLOSURE REQUIREMENTS		
I-1 Closure Plans	2-29-96 (Rev. 2)	
SECTION J OTHER FEDERAL LAWS	10-13-95 (Rev. 1)	
SECTION K PART B CERTIFICATION		
K-1 Facility Certification	8-30-96 (Rev. 4)	
K-2 Engineering Certification	8-30-96 (Rev. 4)	
K-3 Prior Conduct Certification	2-27-96	
SECTION L CONTINUING RELEASES AT PERMITTED FAC	CILITIES	
L-1 Solid Waste Management Units	5-12-95	
Table L.1: Summary of SWMUs	10-13-95 (Rev. 1)	
L-2 Releases	5-12-95	

I-1a

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5-12-95

<u>Title</u>	Latest Revision Date
SECTION M REFERENCES	5-12-95
SECTION N RCRA Checklist	5-1-96
List of Appendices	Latest Revision Date
List of Appendices	
B-1 Legal Description of Property	2-29-96 (Rev. 2)
B-2 ISWS Well Database Listings	2-29-96 (Rev. 2)
C-1 Chemical and Physical Analysis	10-13-95 (Rev. 1)
D-1 Treatment Zone Soil Sampling Data	June 1989
D-2 Perched Water Bearing Zone Water Levels	8-30-96 (Rev. 4)
E-1 Monitoring Well, Piezometer, and Lysimeter Construction Diagrams & Boring Logs	5-12-95
E-2 Groundwater Sampling and Analysis Plan	May 1995
G-1 List of Position Holders and Phone Numbers	2-15-95
G-2 Communications Flow Chart	2-15-95
G-3 Coordination Agreements	10-13-95 (Rev. 1)
G-4 Emergency Facilities and Equipment	2-15-95
G-5 Evacuation Procedures	2-15-95
H-1 Job Descriptions	10-13-95 (Rev. 1)
H-2 Training Records	No Date
I-1 Closure Plan	

Closure Performance Standard

List of A	<u>appendices</u>	Latest Revision Date	
I-1b	Partial Closure Activities	5-12-95	
I-1c	Maximum Waste Inventory	8-30-96 (Rev. 4)	
I-1d	Inventory Removal, Disposal, or Decontamination of Equipment, Structures, and Soils	8-30-96 (Rev. 4)	
I-1d(6)	Closure of Land Treatment Facilities	8-30-96 (Rev. 4)	
I-1e	Closure of Disposal Units	N.A.	
I-1f	Schedule for Closure	5-12-95	
I-1g	Extensions of Closure Time	N.A.	
I-3 No	tice in Deed and Certification	5-12-95	
I-4 Clo	osure Cost Estimate (Table 7-1)	8-30-96 (Rev. 4)	
I-6 Pos	st-Closure Cost Estimate (Table 9-1)	8-30-96 (Rev. 4)	
Appendi	Appendix A		
Sto	rmwater Basin Closure Material Characteristics	May 1993	
Appendi	х В	•	
Site	e Characterization Report (Vol. I of II)	March 1995	
Ap	pendix A Tables and Figures from the 1994 RCRA Annual Groundwater Monitoring Report	Various Dates	
Ap	pendix B ERM Grid Node/Sample Location Map, Trench Location Map and Trench Cross Sections	1989	
Ap	pendix C Soil Boring Logs	November 1994	

	List of Appendices		Latest Revision Date	
	Appendix C	Design Calculations: - HELP Model Storm-Water Management and	5-12-95	
		Erosion Control	8-30-96 (Rev. 4)	
	Appendix D	Construction Quality Assurance Plan	8-30-96 (Rev. 4)	
	Appendix E	Health and Safety Plan	April 1995	
	Appendix F	Closure Cost Estimate Calculations	8-30-96 (Rev. 4)	
	Appendix G	Closure Certification Statement	5-12-95	
I-2	Post-Closure	Plan	8-30-96 (Rev. 4)	
	Appendix A	Closure and Post-Closure Inspection Forms	8-30-96 (Rev. 4)	
	Appendix B	Unsaturated Zone Monitoring Plan	8-30-96 (Rev. 4)	
I-3	Financial Ass	urance Documents	3-21-95	
	Financial Ass	urance Mechanism for Closure		
	Financial Ass	urance Mechanism for Post Closure		
	Liability Requ	nirements		
J-1	Corresponden	ce regarding compliance with other Federal laws	Various Dates	
L-1	Available Eng	gineering Drawings	Various Dates	

<u>Figures</u>	Latest Revision Date
B-1 Site Location Map	9-13-93
B-2 Facility Map (C139501-E-FIGB-2)	2-29-96 (Rev. 1)
B-3 Well and 100-yr. Flood Plain Location Map (C139501-E-FIGB-3)	4-13-95
B-4 Process Sewers, Storm Sewers, Drainage Features, and Fire Hydrant Location Map (C148702-E-FIGB-4)	10-12-95
B-5 Outside Refinery Piping (190-CE-5)	2-20-96 (Rev. 0)
D-1 Land Treatment Facility Site Map (C139501-D-1)	4-11-95
D-2 Distribution of Soil Series (C148703-D-1)	8-26-96
E-1 Site Location Map (C139501-E-1)	4-24-95
E-2 Monitoring Well Location Map (C139501-E-2)	4-24-95
E-3 Lysimeter Location Map (C139501-E-3)	4-24-95
E-4 Geologic Cross-Section Map (C139501-E-4)	4-24-95
E-5 Geologic Cross-Section A-A' (C139501-E-5)	4-24-95
E-6 Geologic Cross-Section F-F' (C139501-E-6)	4-24-95
E-7 Potentiometric Surface Map - Bedrock Piezometers [5-24-94] (C139501-E-7)	4-24-95
E-8 Potentiometric Surface Map - Bedrock Piezometers [10-31 & 11-1-94] (C139501-E-8)	4-24-95
E-9 Potentiometric Surface Map - Deep Wells [5-24-94] (C139501-E-9)	4-24-95
E-10 Potentiometric Surface Map - Deep Wells [10-31 & 11-1-94] (C139501-E-5)	4-24-95

<u>Figures</u>	Latest Revision Date
F-1 Refinery Work Request (02)	1-13-95
G-1 Site Location Map (C126402-B1-1)	9-13-93
G-2 Land Treatment Facility Site Map (C139501-D-1)	4-13-95
Figures in the Closure Plan	
2-1 Site Location Map (C139501-2-1)	4-24-95
3-1 Envelope of acceptable gradation for common borrow material (C139501-3-1)	5-11-95
3-2 Cover Cross Section (C139501-3-2)	4-12-95
4-1 Closure Schedule (C139501-4-1)	5-11-95
Drawings in the Closure Plan	4
1. Facility Map (C139501-D01)	8-23-96
1A. Drainage Subareas (C139501-D01)	8-23-96
2. General Site Plan North (C139501-D02)	3-27-96
3. General Site Plan South (C139501-D03)	3-27-96
4. Closure Material Temporary Storage Plan North (C139501-D04)	3-27-96
5. Closure Material Temporary Storage Plan South (C139501-D-05)	3-27-96
6. Subbase Grading Plan North (C139501-D06)	3-27-96
7. Subbase Grading Plan South (C139501-D-07)	3-27-96
8. Final Grading Plan North (C139501-D08)	8-27-96
9. Final Grading Plan South (C139501-D-09)	8-27-96

<u>Figures</u>	Latest Revision Date
10. Stormwater Management Plan (C139501-D10)	8-27-96
11. Details (C139501-D11)	8-27-96
Figures in Post-Closure Plan	
2-1 Site Location Map (C126402-B1-1)	9-13-93
2-2 Site Map (BASEMAP.DW2)	6-8-93
3-1 Soil Core Random Sampling Grid (C148703- FIG2-3)	8-22-96
3-2 Soil Core Random Sampling Grid (C148703- D2-4)	8-22-96
4-1 Schematic of Drilling Procedures for Collection of Soil Samples (C148703-4-1)	8-28-96
5-1 Sample Label (07)	8-7-96
5-2 Soil/Sediment Sampling Log (03)	8-7-96
5-3 Chain of Custody Record (05)	8-7-96
L-1 SWMU Locations (C139501-E-FIGL-1)	5-9-95
Drawings in Appendix L-1	• • •
Fuels Loading Rack (93-0271.03, Sheet 3 of 6)	June 1993
Solvent Loading Rack (93-0271.02, Sheet 5 of 10)	June 1993
Former Service Station (93-0271.02, Sheet 7 of 10)	June 1993
Former Process Blending UST (93-0271.04, Sheet 3 of 5)	June 1993
Drawing Index Plan (2987-190-CD-1)	11-14-94 (Rev.13)

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Drawings in Appendix L-1	Latest Revision Date
#2 A-D "Big Inch"	
Subcontract Index Sheet (2987-190-CD-3)	3-26-69 (Rev. 2)
Contaminated Storm Drain "A" (2987-152-CD-31)	3-26-69 (Rev. 1)
Contaminated Storm Drain Line "B" (2987-152-CD-39)	3-26-69 (Rev. 2)
#7 Interceptor Trench	
Barge Loading Unit 33 (2987-130-CD-107)	5-27-94 (Rev. 6)
Barge Loading Unit 33 (2987-130-CD-109)	5-27-94 (Rev. 8)
#20 Active Drum Storage Area	
Drum/Dumpster Staging Area Unit 859 (859-CD-402)	August 1992
Drum/Dumpster Staging Area Unit 859 (859-FD-401)	August 1992
Drum/Dumpster Staging Area Unit 859 (859-FD-402)	August 1992
Drum/Dumpster Staging Area Unit 859 (859-FD-403)	August 1992
#23 A-D Water & Wastewater Treatment Plant	
Raw Water & effluent Treating,	
Units 31, 41, 44 (2987-141-KE-100)	5-12-92 (Rev. 19)
Waste Treatment Plant Expansion (144-KD-419)	11-27-91 (Rev. 1)
Waste Treatment Plant Expansion (144-KD-418)	March 1988
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ATTACHMENT H SPECIAL CONDITIONS

UNO-VEN COMPANY Chicago Refinery

1978030004

ATTACHMENT H SPECIAL CONDITIONS

A. CONTINGENCY PLAN

The Permittee shall take the following actions anytime (1) there is a failure of the cover system or a component of the cover system or (2) there is an imminent or actual release of hazardous wastes or hazardous constituents from a land treatment area:

- 1. Implement the Contingency Plan and the control procedures in Section G-4d of the Contingency Plan.
- 2. Make a visual inspection of the area and estimate the extent.
- 3. Collect samples of the media down hill from the failure to determine if waste material has been released. In collecting the samples, the permittee shall make every effort to collect samples that are representative of any material that appears to be waste material from any of the treatment units. The permittee shall contact the Agency's Bureau of Land, Regional Office prior to collecting any samples. An Agency representative shall specify the locations to be sampled and the number of samples to be collected. At a minimum, the samples shall be analyzed for the following parameters, total petroleum hydrocarbons, oil and grease, total organic carbon, Antimony, Arsenic, Barium, Beryllium, Cadmium, Chromium, Cobalt, Lead, Mercury, Nickel, Selenium, and Vanadium.
- 4. The cover system shall be repaired such that the repaired portion of the low permeability layer meets the following specifications:
 - a. Maximum permeability of 1 x 10⁻⁷ cm/sec,
 - b. Minimum density of 90% (Modified Proctor),
 - c. Minimum moisture content of at least 1 percent above optimum,
 - d. Minimum thickness of 2 feet, and
 - e. Maximum thickness of each lift of 6 8 inches.
- 5. The cover system shall be repaired such that the repaired portion of the vegetative layer is a minimum of six inches thick and seeded in accordance with the conditions in this permit.
- 6. The repaired area shall be inspected weekly until the vegetation is firmly established.

- 7. Anytime soil is used to repair an area that is at least 100 square feet in size, the soil in the repaired area shall be tested to verify that the repaired area meets the specifications in Section I of this permit and Condition A.4 above.
 - a. The first testing location shall occur at a point approximately in the center of the repaired area.
 - b. At least one test for each of the following parameters shall be performed on the repaired area. If the amount of soil used for the repair meets the yardage specified below, then the repaired area shall be tested in accordance with the following frequency, in addition to the initial test:

Frequency **Parameter** Density (nuclear or sand cone) 5 tests/acre/lift (every 250 yd3) 5 tests/acre/lift (every 250 yd3) Moisture content 1 tests/acre/lift (every 1,500 yd3) Undisturbed (in-place) permeability Dry Density (undisturbed sample) 1 tests/acre/lift (every 1,500 yd3) Moisture content (undisturbed sample) 1 tests/acre/lift (every 1,500 yd3) Atterberg limits 1 tests/acre/lift (every 1,500 yd3) Grain size (to the 2-micron particle size) 1 tests/acre/lift (every 1,500 yd3) Moisture-density curve 5,000 yd3 and all changes in mat'l.

- c. The density, permeability, dry density, and one of the moisture content tests must be performed in the field on in-place (e.g. undisturbed) samples of the protective cover layer.
- d. All testing procedures shall be in accordance with ASTM methodologies.
- 8. Within 30 days of the completing the repairs to the cover system, the permittee shall provide a report to the Agency. The report must include the following information:
 - a. A description of the incident and what caused the failure.
 - b. How the cover system was repaired.
 - c. If the design of the cover system needs to be modified to prevent similar failures in the future. The discussion of the cover system's design must also discuss the design of other portions of the cover system that are similar to the area that failed.

- d. A scale drawing that shows the location(s) of the cover system that failed and those that are similar to the area(s) that failed.
- e. All sampling and analytical results collected to document compliance with Conditions H.A.3, H.A.4, H.A.5, and H.A.7.
- f. The report shall be certified by a qualified Professional Engineer registered in the State of Illinois.
- 9. If an area that has been repaired, fails within two years of the repair (for any reason), the Permittee shall submit a permit modification request to the Agency to modify the design of the cover system in that area. The modification request shall be submitted within 30 days of the failure.
- 10. All waste material released from the land treatment units shall be managed as a hazardous waste.

B. COMPLIANCE SCHEDULE

All information submitted in response to conditions in this Section of the Permit shall be submitted as a permit modification request. The submittals shall meet the requirements for permit modification requests at 35 IAC 703 Subpart G: Changes to Permits. The Agency shall review each submittal and either issues comments or a modified permit in response to the submittal.

- 1. Within 30 days of the effective date of this permit the permittee shall provide the following supplemental information and clarifications to the permit application:
 - a. The annual volume of wastes applied to each of the land treatment areas during their operation;
 - b. The volume of stormwater basin sludge placed on Area I;
 - c. A drawing for each treatment area which shows all of the following: the perimeter of each land treatment area, the perimeter samples: LAI-4PS, LAI-12PS, LAII-15PS, LAII-4PS, LAII-15PS, LAII-17PS, LAII-17PS, LAII-17PS, LAIII-19PS, LAIII-3PS, LAIV-3PS, LAI-4PSA, and LAI-12PSA, and where the low permeability cover system is two feet thick;

d. A revised seed mix for use on the vegetative layer of the cover system. The revised mix must not include grasses whose roots extend deeper than six inches or might otherwise compromise the low permeability layer.

C. OTHER CONDITIONS

- 1. When submitting the information required by Condition III.I.2 for the SW-Series wells, the permittee shall also provide cross sectional views and post diagrams of each treatment plot. These drawings and diagrams shall identify the locations and elevations of the wells and soil core samples, and elevations of the ground surface, perched water table, the bottom of the treatment plots, and all geologic formations. The Permittee shall obtain the Agency's approval of the proposed locations of the cross sections and post diagrams prior to the submittal of the first quarterly report.
- 2. Precipitation data used in conjunction with the inspection schedule shall be collected at the UNO-VEN Chicago Refinery. If necessary, the permittee shall install a rain gage and/or weather station at the facility to collect this information. These devices shall be installed no later than the effective date of this permit.

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ATTACHMENT I

UNSATURATED ZONE MONITORING PARAMETERS

UNO-VEN COMPANY Chicago Refinery

1978030004

1978030004 UNO-VEN Company RCRA Log No. B-162

ATTACHMENT I UNSATURATED ZONE MONITORING PARAMETERS

Skinner List Parameters and Analytical Methods, Land Treatment Facility, UNO-VEN Refinery, Lemont, Illinois.

Volatile Organic Compounds

(SW-846 8240)

Benzene (5/5)

Carbon disulfide (5/5)

Chlorobenzene (5/5)

Chloroform (5/5)

1,2-Dichloroethane (5/5)

1,4-Dioxane (5/5)

Ethylbenzene (5/5)

Ethylene dibromide (5/5)

Methyl ethyl ketone (5/5)

Styrene (5/5)

Toluene (5/5)

Xylene (5/5)

Metals

(SW-846 7000 Series)

Antimony (250/5)

Arsenic (100/2)

Barium (25000/500)

Beryllium (2500/50)

Cadmium (1000/20)

Chromium (1000/20)

Cobalt (2500/50)

Lead (5000/100)

Mercury (10/0.2)

Nickel (1000/20)

Selenium (100/2)

Vanadium (50000/1000)

Semivolatile Base/Neutral Organics

(SW-846 8270)

Anthracene (330/10)

Benzo(a)anthracene (330/10)

Benzo(b)fluoranthene (330/10)

Benzo(k)fluoranthene (330/10)

Benzo(a)pyrene (330/10)

Bis(2-ethylhexyl)phthalate (330/10)

Butyl benzyl phthalate (330/10)

Chrysene (330/10)

Dibenz(a,h)acridine (330/10)

Dibenz(a,h)anthracene (330/10)

Dichlorobenzenes (330/10)

Diethyl phthalate (330/10)

7,12-Dimethylbenz(a)anthracene (330/10)

Dimethyl phthalate (330/10)

Di(n)butyl phthalate (330/10)

Di(n)octyl phthalate (330/10)

Fluoranthene (330/10)

Indene (330/10)

Methyl chrysene (330/10)

I-Methylnaphthalene (330/10)

Naphthalene (330/10)

Phenanthrene (330/10)

Pyrene (330/10)

Pyridine (330/10)

Quinoline (330/10)

Semivolatile Acid-Extractable Organics

(SW-846 8270)

Benzenethiol (330/10)

Cresols (330/10)

2.4-Dimethylphenol (330/10)

2.4-Dinitrophenol (330/10)

4-Nitrophenol (330/10)

Phenol (330/10)